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THE SCIENCE AND IDEOLOGY OF SCHUMPETER

by
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I. INTRODUCTION

The programme of research which Joseph Alois Schumpeter, as a social scientist, tried to carry out throughout his life was an elucidation of not only the economic development of capitalism, but also the *total* development of a capitalist society that includes economic development as a part. Schumpeter once called the totality of a varied social life "social culture" (or *die soziale Kultur*) of a nation and the totality of development of social life "socio-cultural development" (or *die soziale Kulturentwicklung*) (1912, p. 545). How was his picture of the total or socio-cultural development of capitalism constructed methodologically and substantively?

The characteristic of Schumpeter's works seems to lie not so much in his separate scientific treatment of the component parts of the total picture as in his comprehensive design, idea, or insight which gives each component its proper place in the total picture. Schumpeter sought for the universal truth inherent in the process of capitalistic development: to use his favorite words, the "logic of things" (or *Logik der Dinge*) (1915, p. 102). The presumption that such a logic should exist will demand unity and consistency of ideas. One cannot adequately evaluate the significance of Schumpeter's separate scientific achievement without an appreciation of his comprehensive ideas on the socio-cultural development of a capitalist society.

I would like to call for short Schumpeter's design, idea, or insight his "vision". He himself used this concept as an activity preceding scientific cognition. He paid attention to vision because the ideological element inescapably intervenes in the formation of vision, and attached a great

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This paper is dedicated to the memory of Tullio Bagiotti.

importance to the intertwinement between science and ideology. In his personal inclination Schumpeter showed repugnance against value judgments and policy discussions and preferred to talk about the progress of science as a purely analytical apparatus. Probably this attitude of Schumpeter has precluded one from noticing an ideological bias in his scientific works. It is crucial, however, for an understanding of Schumpeter to make clear the influences of ideology, which he stealthily brought in, on his construction of an analytical framework.

In this paper we shall first make clear the concepts of science, vision, and ideology in the light of the contemporary philosophy of science, and then discuss and identify Schumpeter's ideology which constitutes his basic insight sustaining his whole system of thought. At the same time we shall examine what will remain as an apparatus of scientific analysis for the total development of capitalism if ideological bias could be excluded from his system of thought.

II. Philosophy of Science and Sociology of Science

Science, Vision, Ideology, and Value

Since the publication of his first book on economics *Das Wesen und der Hauptinhalt der theoretischen Nationalökonomie* (1908) Schumpeter always kept a deep interest in the methodology of economics, but his discussion of science and ideology was mainly developed late in his life (1946, 1949, 1954 Part I) [1]. Schumpeter observed that scientific inquiry, in a broad sense, consists of two stages: the formation of vision and the building of the scientific model. The first stage is to perceive as an object of inquiry a set of related phenomena which we want to analyze. This requires a judgment of what is important, from one's viewpoint, in understanding natural or social phenomena. This prescientific perception is called vision. The second stage is to analyze the material prepared by the vision. The recogni-

[1] Schumpeter's early writings relating to the history and the methodology of economics do not literally discuss the relation between science and ideology, but reject rather strongly the ideological influences: see Schumpeter (1908, 1914). But as far as the issue of ideology is substantively a major subject matter of the sociology of science, it is already implied in his early discussion of a unified development of science which evidently anticipates his later discussion of the scientific filiation: see Schumpeter, *Vergangenheit und Zukunft der Sozialwissenschaften* (1915), which deals with the history of broader social science. Chapter 4 of this book is subtitled "Toward the Sociology of Science" (or "*Zur Soziologie der Wissenschaft*").

tion and collection of facts leads to the building of concepts and analytical apparatus, and vice versa. Through the feedback between factual and theoretical research scientific hypotheses or models are formulated.

These two stages, *vision* and *analysis*, are technically like a syllogism consisting of major premise, minor premise, and conclusion. In contrast, *ideology* indicates specific elements entering the stage of vision; it is a preconception existing in our mind about an object of inquiry. This preconception is no doubt influenced by previous and contemporary scientific views. Ideology in this sense is different from *value judgments* or political precepts for two reasons. First, though preanalytic, ideology includes a cognitive act and is a prerequisite for indicating an object of research, while evaluative and prescriptive judgments are neither cognitive acts nor prerequisites of science. Second, in spite of the above, ideology is beyond our control and therefore dangerous to science, while value judgments are not so because they can be separated from science. Indeed ideology and value judgments are closely related to each other and usually regarded as synonymous, but ideology in Schumpeter's sense should be understood independently of value judgments.

Of these related concepts Schumpeter's major emphasis was on the relation between science and ideology; this is the subject matter of the sociology of science or knowledge which treats science as a social phenomenon. Indeed there are some points which might suggest Schumpeter's taking vision and ideology as interchangeable, but in his basic intention they are distinct. *Vision* is a preliminary image of problems and is to be formulated analytically in accordance with rules of scientific procedure. The part of vision which is not amenable to scientific treatment is merely redundant to science and, so to speak, leftover material not processed. *Ideology* enters the process of drawing the image of problems (vision) and is not the image of the problems themselves. In the stage of scientific model building ideological bias is excluded (hopefully) under the objective control of scientific procedure, whereas in the prescientific act of vision it is not so expected.

It is important to note that the part of vision which is not successfully formulated in the stage of model building has its own life and plays its own role. Such vision might sometimes disappear from science as a mere illusion, but sometimes becomes political value judgments or social beliefs and continues to exist in disguise in science as if it were science. In this case Schumpeter speaks of the victory of ideology over analysis.

Although in *History of Economic Analysis* (1954) Schumpeter alleged to write a history of economics as scientific analysis, not as political economy or economic thought, he was still interested in the relationship be-

tween science and ideology, i.e. the sociology of science. That Schumpeter paid special attention to the sociology of science in his discussion of the methodology as well as the history of economics is important for us in examining his view of science. He recognized that scientific cognition and value judgments are separable in principle but actually connected with each other because they are commonly produced from ideology and vision. Science, value, vision, and ideology are, so to speak, materials boiled and stirred up in the same pan; even a pure consideration of science would not allow us to neglect other materials – in particular, ideology.

Three Major Issues

So much for a set of concepts. Now, in order to illustrate the extent of Schumpeter's view on science and ideology, I would like to raise three issues which he discussed in different contexts: relativism, economic development, and filiation in the history of science.

First, in discussing the structure and procedure of science, the traditional philosophy of science usually assumed an ideal theory that is already completed. By contrast, Schumpeter bore in mind Marx's theory of ideology and Mannheim's sociology of knowledge, though critical of their treatment of ideology, and regarded the stage of vision formation explicitly as a part of scientific activity. This means bringing the sociology of science into the philosophy of science and stresses relativism to the effect that any theory must be viewed in relation to a given social environment. Relativism itself is not new; the point here is what will be deduced from Schumpeter's version of relativism:

> Roughly up to the middle of the 19th century the evolution of "science" had been looked upon as a purely intellectual process– as a sequence of explorations of the empirically given universe or, as we may also put it, as a process of filiation of discoveries or analytic ideas that went on, though no doubt influencing social history and being influenced by it in many ways, according to a law of its own. Marx was the first to turn this relation of interdependence between "science" and other departments of social history into a relation of dependence of the former on the objective data of the social structure and in particular on the social location of scientific workers that determines their outlook upon reality and hence what they see of it and how they see it. This kind of relativism – which must of course not be confused with any other kind of relativism – if rigorously carried to its logical consequences spells a new philosophy of science and a new definition of scientific truth (1949, p. 348).

Whereas in the natural sciences relativism asserting the influences of social context on theories does not extend over the choice of problems and approaches, relativism in the social sciences involves that a particular proposition might depend on beliefs and attitudes of observers and not always on universal experience which is invariant to the observers' social location. Relativism meant for Schumpeter not only that, compared with the natural sciences, the social sciences were immature, but also that they were by nature ideologically biased.

Unfortunately Schumpeter himself did not explicitly establish "a new philosphy of science" and "a new definition of scientific truth" with reference to the social sciences. Although he had to admit relativism, he had recourse to the fact that many phenomena still looked alike to everyone, and that the methodological rules of procedure prevented ideology from intervening in the stage of model building. But he was not optimistic about the possibility of objective social science, so that he in fact pointed out that ideology was necessary but dangerous to science.

The significance of Schumpeter's relativism, however, is not to be found in such pessimism or warning, but in the positive claim that science should be considered in a historical perspective, as we shall discuss in the following two issues.

Secondly, Schumpeter's view that vision plays a key role when it is concerned with the process of long-term economic changes is quite important, because he himself tackled this process throughout his life:

> [W]hen we are concerned with nothing more ambitious than to formulate the way in which – on the plane of pure logic – economic quantities 'hang together', that is, when we are concerned with the logic of static equilibrium or even with the essential features of a stationary process, the role of Vision is but a modest one – for we are really working up a few pretty obvious facts, perception of which comes easily to us. Things are very different when we turn to the task of analyzing economic life in its secular process of change. It is then much more difficult to visualize the really important factors and features of this process than it is to formulate their modi operandi once we have (or think we have) got hold of them. Vision (and all the errors that go with it) therefore plays a greater role in this type of venture than it does in the other (1954, p. 570).

As for the long-term economic process where a large number of factors are likely to change, there are many alternatives in assuming a causal relationship and drawing a historical scenario. Moreover, a verification or falsification of a theory of economic development requires an accumulation of long-term experiences, without which any theory of the long-term process

would not be more than a vision. Any effort to work on the total development of a capitalist society is concerned with the long-term process, and Schumpeter admits that in this case vision and ideology might survive without a crucial check.

Thirdly, Schumpeter identified the source of ideology with the social circumstances of scientists. Scientists do not start from scratch; "we start from the work of our predecessors or contemporaries or else from the ideas that float around us in the public mind" (1949, p. 350). These things belong to the social circumstances given to scientists; in this sense "the original vision *is* ideology by nature" (1949, p. 351; italics original). "Analytic work begins with material provided by our vision of things, and this is ideological almost by definition" (1954, p. 42). The image of society (vision) starts from the preconceptions of scientists (ideology).

Via the retheorizing of successive generations, the historical inheritance of theory or "filiation of scientific ideas" (1954, p. 6) constitutes a historical continuity in the history of science. If one takes superficially what Schumpeter said, his work in the history of economics appears to pursue only the internal development of analytic or scientific systems of thought. But paradoxically, in order to do that, he required a viewpoint of the sociology of science which was concerned with external moments of scientific activity. The association of the philosophy of science with the sociology of science was, in the case of Schumpeter, actually conceived and practiced in the context of the history of science.

The above three issues concerning science and ideology are closely related to each other. Our next task is to discuss the significance of Schumpeter's position in the light of the recent development of the philosophy of science.

Contexts of Discovery and Justification

Logical positivists distinguish between the context of discovery and that of justification. These terms were introduced by Hans Reichenbach (1938) to mark the distinction between the way a scientific theory is discovered and the way in which it is formulated and justified. It can be argued that this distinction corresponds to Schumpeter's distinction between vision and science.

According to the standard account, the contrast between discovery and justification is explained in the following way (see Kordig, 1978). Discovery concerns the origin and invention of scientific theories and hypotheses.

Justification concerns their evaluation, test, and confirmation. Problems in the context of discovery are the concern of psychology, sociology and history of science. The context of justification is the subject matter of the philosophy of science. Discovery is subjective, but it is only descriptive. Justification is objective, but it is normative because a theory must abide by its rule. Discovery deals with the initial selection of facts for study. Justification evaluates the process of the give and take between hypotheses and facts.

Logical positivists were interested only in the context of justification and neglected factors concerning the genesis of theories, because they believed that no logical method could be applied to the discovery of a theory and they only dealt with the static structure of a theory as the finished product. This point was made by the subsequent criticism against logical positivism. According to logical positivism a nonanalytic (factual) statement has meaningfulness or cognitive significance only if it is verifiable by observational evidence. But it is not possible to distinguish strictly between theory and observation because we can observe facts only on the assumption of a theoretical framework. Moreover, such a statement is not conclusively verifiable on account of the famous problem of induction, so that a theory is rather accepted in fact on various criteria, undergoes endless modification and proliferation, and continues to exist with tenacity even if it is falsified.

From the criticism against the positivistic philosophy of science it has been established that the context of discovery dealing with origin, evolution, and acceptance or rejection of theories should be a legitimate and essential concern of the philosophy of science (see Suppe, 1979, pp. 125-126). The most important consequence of this change to the philosophy of science is serious attention given to the dynamics of scientific growth and persistence and thus to the history and the sociology of science. After logical positivism authors such as Popper, Kuhn, Lakatos, Feyerabend, Laudan and others contributed to this new stream [2].

In the light of the above it can be said that Schumpeter's discussion of science and ideology anticipated the subsequent development in the philosophy of science. He himself showed deep interest in the history of econom-

[2] As to the movements in the philosophy of science and their reflection in the methodology of economics, see CALDWELL (1982). Caldwell discusses economists such as Robbins, Hutchison, Machlup, Friedman, and Samuelson as representing different methodological positions. But it is quite curious and unfair that he completely neglects Schumpeter; Schumpeter's name appears neither in the index nor the bibliography. This seems to have something to do with the fact that Schumpeter's methodological inquiry *Das Wesen und der Hauptinhalt* has not been translated into English.

ics and introduced the conceptual framework for dealing with ideology which used to belong to the context of discovery, thus providing a basis for the analysis of the context of justification from the viewpoint of historical growth of theories. His position differed from the positivistic view which neglected the problems originating in the context of discovery, and also from the sociological view which dealt with those problems only as the concern of the sociology of science. It is not an incomprehensible inconsistency that while he always alleged to restrict himself to economics as an objective science, Schumpeter in fact paid considerable attention to the sociological factors which might affect the development of science. We shall take a step forward and suggest that his position is appropriately interpreted with reference to Lakatos's methodology of science.

A Comparison with Lakatos

Lakatos's notion of "scientific research programme" is almost similar to Kuhn's "paradigm". A scientific research programme consists of two kinds of methodological rules, namely, a negative heuristic (which tells us what research paths are to be avoided) and a positive heuristic (which tells us what research paths are to be pursued). At the same time, a research programme is characterized by two components: a "hard core" (which consists of irrefutable general theoretical hypotheses) and a "protective belt" (which consists of refutable variants such as auxiliary and observational hypotheses, initial conditions, mathematical and experimental techniques, etc.) around a "hard core". While the negative heuristic forbids us to refute a "hard core", the positive heuristic allows us to change, invent, and develop a refutable "protective belt". It is the task of the positive heuristic to take charge of meeting criticisms and anomalies resulting from gaps between theory and observation, and to extend the scope to which the theoretical hypotheses can be applied.

A scientific research programme does not mean a single theory in isolation but a series of theories with common rules and values, and it allows cumulative expansion and modification within its system defined by a "hard core". In other words, the research programme means a series of "protective belts" developed on the basis of a common "hard core". Lakatos defines a series of theories as progressive if it predicts some new, hitherto unexpected facts and if it leads to the actual discovery of some new facts. The progressiveness of a programme is the criterion to determine the superiority of the programme. But since a judgment of progressiveness takes a

long time, Lakatos stresses the hindsight elements in appraisals of theories and regards the existence of competing research programmes as a normal affair in science. This consideration leads him to stress the importance of "methodological tolerance".

Thus, Lakatos's position may be summarized as follows. On the one hand, Lakatos denies that science, as Popper presupposed, undergoes permanent revolution by ceaseless falsification of theories; instead, he states that a series of theories with a common "hard core" persists tenaciously in face of unfavorable empirical tests. On the other hand, Lakatos views the history of science, contrary to Kuhn, as a history of competing research programmes rather than as a sequence of ruling paradigms. Of course, Lakatos keeps, by his criterion of progressiveness, elements of Popper's normative methodology of science, on the one hand, and adopts, by his concepts of "hard core" and "protective belt", elements of Kuhn's sociological principle of tenacity, on the other. Therefore, Lakatos's methodology is, in a sense, a compromise between Popper and Kuhn.

On the basis of a brief exposition of Lakatos's framework, we contend that his distinction between a "hard core" and a "protective belt" is similar to that of Schumpeter between ideology and science [3]. Although Schumpeter brought ideology into the consideration of science, his intention was not to indulge in relativism of science but still to speak of scientific progress. Paradoxically speaking, by explicitly introducing ideology into the realm of science he could, though implicitly, speak of progress in the formulation of scientific models constructed on presupposed ideology [4]. This is practiced in the context of the history of science. His key word in that context is the "filiation of scientific ideas", and this could be compared to Lakatos's conception of a series of theories developed around a "hard core". Another key word in the methodology of economics put forward by Schumpeter in *Das Wesen und der Hauptinhalt* was "methodological tolerance", which allows the coexistence of competing research programmes, a concept similar to that of Lakatos.

If it is right to think in this way, ideology in Schumpeter is not an ad

[3] As far as I know, a similar contention is provided by BLAUG (1976, p. 157). He cursorily writes that "Lakatos's 'hard core' expresses an idea similar to that conveyed by Schumpeter's notion of 'vision'".

[4] In the realm of analytic work, Schumpeter says, there is a widely accepted standard, so that one can speak of scientific progress between Mill and Samuelson in the same sense in which there has been technological progress in the extraction of teeth between the time of Mill and our own (SCHUMPETER, 1954, p. 39). Although Schumpeter does not explicitly define the standard of scientific progress, he seems to have in mind a criterion concerning "analytic perfection" within a presupposed paradigm or research programme.

hoc factor that merely precedes a theoretical model and can be dispensed with once a model is formulated. Ideology stays as an irrefutable "hard core" at the center of a scientific research programme and gathers several auxiliary hypotheses around itself, thus contributing to the structured system of science. We shall attempt to interpret Schumpeter's structure of thought using Lakatos's methodological concepts.

III. An Interpretation of Statics-Dynamics Dualism

Statics vs. Dynamics

Schumpeter's model of economic statics is a version of the neoclassical equilibrium theory. His static model basically relates to an economic equilibrium established under certain given conditions, but, if time is taken into account, it relates also to a stationary state or a circular flow which repeats itself year after year on the same scale and with the same pattern. His notion of economic statics includes not only the circular flow but also the growth process with steadily increasing population and capital. Under steady economic growth changes are limited to the quantitative expansion of an existing economy and distinguished from doing something new and differently.

Thus Schumpeter selects only those essential factors which he insists characterize economic dynamics, and includes all the rest in the scope of economic statics. In this sense his method is a purification of dynamic phenomena, which he calls "economic development". His theory of economic development was given in *Theorie der wirtschaftlichen Entwicklung* (1912). Economic development is caused by "innovation", broadly defined as the introduction of new products, new methods of production, new markets, new sources of supply, and new forms of industrial organizations. The significance of innovation is that it changes the data from within the economic system and shifts the system from an old to a new equilibrium.

Although Schumpeter sharply distinguishes economic development from the circular flow and the steady growth because economic development cannot be analyzed by the model of economic statics, he neither denies nor excludes the model of economic statics from his analysis of economic development. The issue of statics and dynamics in Schumpeter is not that the former should be replaced by the latter, but that both are required to describe the reality on account of a special connection between the methods and the objects of inquiry. Thus he writes:

[O]ne sees that dynamics should destroy and modify a lot of things. The core of the static theory should not be replaced by a conception which is concerned with development. Only for a total analysis of economic phenomena in general and for social philosophy statics is not applicable (1912, p. 511).

Specifically, four pairs are discussed by Schumpeter as the interpretations of statics-dynamics dualism [5]. First, two theoretical apparatuses: static theory and dynamic theory. Secondly, two real processes: the circular flow and the steady growth, the tendency toward equilibrium, the adaptation to innovation, on the one hand, and a change in the circular flow and in the growth process, the deviation from equilibrium, a spontaneous and discontinuous innovation, on the other. Thirdly, two periods in economic life: the depression period when the liquidation and reorganization of an economic system takes place, and the boom period when the deviation from an existing economic pattern takes place. Fourthly, two types of individual: mere manager and entrepreneur, or more generally speaking, ordinary man and leader; in terms of the motives of human conduct, the satisfaction of hedonistic wants and the pursuit of supreme activity, creation and victory. Two different theoretical apparatuses are to explain three pairs of different facts.

Schumpeter's distinction between static circular flow (and steady growth) and dynamic economic development has incurred the criticism that his approach suffers from dualism or dichotomy [6]. It is not necessarily open to criticism to say that different methods should be devoted to different problems. The point of the criticism would be that the relations between statics and dynamics are not sufficiently clarified in terms of problems and methods.

We claim that the theorizing of statics-dynamics relations would involve an important link between science and ideology in Schumpeter. Such double theorizing primarily determines the image of the objects to be grasped by science and then the structure of science. It is ideology in Schumpeter's sense that governs the process preceding a scientific analysis. In the following we shall point out that the relation between statics and dynamics is not a simple dichotomy but a structure. A structure of statics-dynamics dualism will be examined by three observations.

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[5] Of these pairs the second, third and fourth are mentioned in SCHUMPETER (1912, pp. 512-513), and the first, second and third are in SCHUMPETER (1926a, pp. 120-122; tr. 1934, pp. 82-83).

[6] This sort of criticism was initiated by BECKERATH (1929).

Equilibrium Theory as Magna Charta

First of all, it is noteworthy that Schumpeter states that the proof of equilibrium is the magna charta of economic theory as an autonomous science (1939, vol. 1, p. 41). In neoclassical economic theory, given some exogenous data, prices and quantities of various goods and factors of production – i.e. the pattern of resource allocation – are uniquely and interdependently determined. Schumpeter observed that if in a certain area of social life a state of equilibrium can be determined corresponding to exogenous data, the area in question is logically so self-sufficient that one can legitimately assume an autonomous and independent science for that area. The subject matter of an area can be taken to be a cosmos and not a chaos only if a unique equilibrium can be proved for a given situation. The subject matter of equilibrium economics is an orderly world in this sense [7].

Then, Schumpeter's view that, although static phenomena have an equilibrium, dynamic ones have not, offers an important key to an understanding of statics-dynamics dualism. He wrote:

> It follows from our entire thought that *a dynamic equilibrium does not exist.* Development in its ultimate nature consists in disturbances of an existing static equilibrium and does not have a tendency to return to a previous or any other equilibrium. Development changes the data of a static economy... Development and equilibrium are opposite phenomena excluding each other. Not that a static economy is characterized by a static equilibrium and a dynamic economy by a dynamic equilibrium; on the contrary, equilibrium exists only in a static economy. *Economic equilibrium is essentially a static equilibrium* (1912, p. 489; italics added).

The notion of equilibrium growth or dynamic equilibrium, much discussed in the post-Keynesian growth theory, should belong to statics according to Schumpeter because an equilibrium growth is proved under some exogenously given conditions such as growth of labor, capital, and technical progress. Innovation, which is a disturbance of equilibrium by definition, is not amenable to equilibrium analysis. If there is no equilibrium in the sphere of innovation and economic development as such, it follows from Schumpeter's reasoning that economic development cannot be regarded as the object of science unless it is somehow linked with a mechanism of equilibrium and order. Indeed an investigation of economic development

[7] This important idea was expressed fully in chapter 7 of the first edition of *Entwicklung* (SCHUMPETER, 1912), but this chapter was omitted in the later editions as well as in the English translation.

expands the scope of economics in comparison with static theory; the new sphere or "extended building" includes a basically different type of man (entrepreneur) and a new type of activity (innovation). This new sphere, however, cannot stand by itself; static theory is indispensable to theory of economic development.

Innovation means changes in the data, and statics can only deal with its effects on an economy in terms of the equilibrating mechanism, which will work so as to adapt the economy to innovation or to absorb innovation into the economy. As seen as the *objects* of inquiry, statics and dynamics are two separate phenomena, but as seen as the *methods* of inquiry, they are not independent; it is statics that makes economics, including theory of economic development, possible as an autonomous science. Dynamics can add new propositions about economic development only with the aid of statics. Schumpeter, therefore, does not have dual methods of statics and dynamics; he has only the method of statics, i.e. equilibrium analysis, although he has dual phenomena of static and dynamic economies.

It is Léon Walras who first established equilibrium analysis in economics. Schumpeter all along regarded Walras as the greatest theoretical economist. In the preface to the Japanese edition of his *Entwicklung* Schumpeter writes:

> To Walras we owe a concept of the economic system and a theoretical apparatus which for the first time in the history of our science effectively embraced the pure logic of the interdependence between economic quantities (1937, p. 2).

Schumpeter himself discusses in greater detail the reasons why equilibrium analysis is essential to the understanding of an economy. His discussion is summarized in the following points (1939, vol. 1, pp. 69-70). (1) However abstract the equilibrium theory may be, it gives "the bare bones of the economic logic". (2) The equilibrium theory gives the description of a response apparatus of an economic system to changes in the data, whether exogenous or endogenous. (3) The concept of equilibrium is indispensable as the standard of reference, whether for an analytical or diagnostic purpose. (4) The most important relevance of the equilibrium concept depends on the possibility of a tendency in the real world toward equilibrium. While points (1)-(3) relate to the significance of the equilibrium theory as an analytical tool, point (4) is concerned with the equilibrating capacity of the real world and must be distinguished from (1)-(3).

Walras as Ideology

Secondly, let me move to Schumpeter's outlook on the real world. His view on the methods of analysis mentioned above is reflected in the view on the objects of analysis through point (4), i.e. the relevance of the equilibrium concept to the real world. In his masterpiece on statics *Das Wesen und der Hauptinhalt* he described statics not as a discussion in a vacuum but as the statement of a universal existence. He wrote:

> Our system [the static theory] ... covers a great deal of facts and has closer relations with reality than an opponent of the theory seems to believe... The opponent of the theory overlooks only too easily that the facts which conform to its scheme are quite extraordinary in number (1908, p. 564).

In his empirical analysis of the business cycles he stresses the fact that the capitalist economy, while embodying within itself factors of disturbance, is self-adjusting by the device of boom and depression:

> What matters to us is precisely the presence or absence of an actual tendency in the system to move toward a state of equilibrium: if this concept is to be useful as a tool of business-cycle analysis, the economic system must strive to reestablish equilibrium whenever it has been disturbed or, ... it must tend to move, in reaction to every disturbance, *in such a way as to absorb the change*... Common sense tells us that this mechanism for establishing or reestablishing equilibrium is not a *figment* devised as an exercise in the pure logic of economics but actually operative in the *reality* around us (1939, vol. 1, p. 47; first italics original, second and third italics added).

In contrast to speculating on the logic of static equilibrium analysis merely in the world of ideas, it is essentially ideology (in Schumpeter's sense) that will mold the image of reality by a fixed theory and presume the existence of a tendency toward equilibrium. Schumpeter learnt this ideology from Walras; we call it Walras's ideology *W* in Schumpeter.

Theory of Innovation as Protective Belt

Thirdly, considering the emphasis which Schumpeter placed on the static theory, we have to ask what the significance of his dynamic theory is. We raise an objection to the general understanding of Schumpeter that he simply rejected the traditional static theory and established a dynamic theory in order to explain dynamic phenomena which are not covered by

statics. Such an understanding might have been simply misled by his dramatic stress that capitalism is by its nature a process of constant change.

Moreover, it is most often asserted that Schumpeter introduced the process of circular flow into the theory of economic development only for the purpose of making the process of dynamic change conspicuous in contrast to stationary conditions, or for the purpose of making a useful mental experiment by asking what a capitalist economy would be like if the dynamic changes were absent [8]. Samuelson in the same vein called the exposition of the circular flow in the first chapter of *Entwicklung* a "parable" (1943, p. 61). But such an appraisal, too, overlooks the methodological demand of dynamic theory for the device of equilibrium theory.

Stolper's view (1982, pp. 30-33) varies from the ordinary ones: he is quite right in emphasizing that understanding the nature and role of equilibrium is as central a part of understanding Schumpeter's approach to economic development as is the nature and role of innovation; specifically he does justice to Schumpeter's view that the adaptive forces of an economy toward equilibrium are very strong. But Stolper seems to go astray toward stressing the destructive power of innovation, which is required in order to get rid of an equilibrium which is so adaptable.

In Schumpeter both equilibrium and disequilibrium are important parts of reality and located in the business cycle. Paradoxically speaking, because Schumpeter believed in the inherent stability and thus the order-conferring capacity of the capitalist economy, he could deal with the dynamic phenomenon, the destruction of the existing equilibrium, the aberration from the existing order of the economy. Whatever destructive forces may emerge in the economy, the market can be relied on to adapt to them and absorb their effects to establish a new order. This is Schumpeter's notion of economic order, and on its basis economics as an autonomous science is guaranteed.

Now let us summarize the relationship between statics and dynamics in Schumpeter from the methodological point of view. The Walrasian static theory gave Schumpeter the basic ideology W which takes reality as an orderly system. We can regard the static theory as a "hard core" in Lakatos's sense, which is maintained by those who, like Schumpeter, accept neoclassical economics as a grand "scientific research programme". Schumpeter's theory of economic development can be interpreted as a "protective belt" around this core, because his dynamics is properly conceived as an auxiliary hypothesis added to the Walrasian statics. Far from denying the static

[8] Among many arguments to this effect, the most recent one is made by ELLIOTT (1983).

theory, Schumpeter's theory of economic development, which we now call *W'*, stands on it and carries the function of forbidding criticism against it. Moreover, statics and dynamics should not be treated separately like two watertight compartments; they are complementary to each other as a "hard core" and a "protective belt" and have different functions, i.e. the negative heuristic and the positive heuristic. This is our interpretation of the statics-dynamics dualism.

Some Drawbacks

Schumpeter's dynamics interpreted as the "protective belt" around the general hypothesis of statics is not free from drawbacks. In his view innovation is historically individual and disorderly; economic development brought about by innovation is not an organic unity, so that a high degree of theorizing of innovation and economic development is extremely difficult. Furthermore, the logic of economic analysis he was convinced of was the Walrasian general equilibrium theory. Under these restrictions Schumpeter struggled hard to develop a theoretical apparatus of dynamics after he grasped the crucial importance of innovation in economic development. His theorizing suffers from two drawbacks.

First, although Schumpeter paid special attention to innovation as the cause of economic development, it was the phenomena accompanying innovation that he actually engaged himself in theorizing; he failed to provide an analysis of the manner in which innovation takes place on the historical scene. His *Entwicklung* was criticized for neglecting all historical factors of change except entrepreneurial innovation in general. To this criticism he rightly replied:

> My representation is not at all concerned with the *factors* of change, but with the methods by which these work, with the *mechanism* of change. Even the "entrepreneur" is *here* not a factor of change but merely the bearer of the mechanism of change (1926a, p. 93; tr. 1934, p. 61; italics original) [9].

He always emphasizes that innovation is an endogenous factor responsible for changes in the data. Actually, however, he does not analyze innovation in detail, but only describes various phenomena accompanying innovation, i.e. business cycle. Although one may say that innovation is endogenous in the sense that it is carried out by the entrepreneur, it is no less than an

[9] I slightly modified the English translation so as to be closer to the original German.

exogenous factor in the sense that it is an ultimate factor not susceptible to further analysis.

Secondly, another drawback is that Schumpeter failed to provide a manageable model of economic development. This is due to his belief that economic development is not an organic unity, and has also something to do with his hostility against Keynesian macroeconomic analysis. For he believed that innovation occurs in limited industrial sectors and thus economic development is in essence a microeconomic process:

> Since this relation [between saving, investment, and the rate of interest] is the net result of the interaction of all the variables of the system, it can be expressed only in terms of the Walrasian apparatus. From the attempt to do so by means of two independent single-value functions of the rate of interest nothing but caricature can result (1939, vol. 1, p. 78).

> It is, therefore, misleading to reason on aggregative equilibrium as if it displayed the factors which initiate change and as if disturbance in the economic system as a whole could arise only from those aggregates. Such reasoning is at the bottom of much faulty analysis of business cycles. It keeps analysis on the surface of things and prevents it from penetrating into the industrial processes below, which are what really matters (1939, vol. 1, pp. 43-44).

In order to develop fully his original vision of economic development his theory should have satisfied three requirements: first, it must be a monetary theory of production which takes into account the impact of bank credit on the structure of a real economy; secondly, it must have a framework of interindustry analysis which deals with the impulse of leading industries; thirdly, it must explain the trend and cycles of economic activity simultaneously. The goal was too ambitious and he could not work out such a theoretical model.

What actually characterizes Schumpeter's development theory is rather a sociological description of the motive and type of an entrepreneur as the bearer of innovation, on the one hand, and an impressionistic description of the business cycles caused by innovation, on the other. Although the latter description in *Entwicklung* is usually taken as the presentation of a dynamic process, the fact is that it does no more than indicate a series of causes and effects such as innovation, credit creation, forced saving, entrepreneurial profit, entry of competitors, overproduction, and depression.

Schumpeter's *Business Cycles* (1939), a huge theoretical, historical, and statistical analysis of the capitalist process, was not successful as Kuznets (1940) adequately evaluated. While Schumpeter's primary factors and con-

cepts such as entrepreneur, innovation, and equilibrium were extended to explain in an impressionistic way the above-mentioned series of events, he failed to forge the necessary links between the primary factors and the statistical observations of business cycles. These links should have been given by a theoretical model which is concerned with interindustry relations, monetary disturbances, and the three-cycle schema (the cycles of Kondratieff, Juglar and Kitchin).

Schumpeter's observations of economic process, imperfect as they are in themselves, cover only a half of his world. Another half, a historical socio-cultural picture, consisting also of a certain "hard core" and a "protective belt", must be jointed to it. We now proceed to this.

IV. Economic Development and Socio-Cultural Development

Limits of Theory of Economic Development

Starting from *Das Wesen und der Hauptinhalt*, which is a recapitulation of economic statics, Schumpeter explored the area of economic dynamics in *Entwicklung* and *Business Cycles*. In view of his programme of social scientific research, however, theory of economic development only marked a halfway position toward the goal. *Capitalism, Socialism and Democracy* (1942) established as the object of inquiry a wider area including politics, society, and culture as well as economy and discussed the historical evolution of the capitalist system in terms of the interrelations between economic and non-economic areas. This wider perspective gave Schumpeter an opportunity for completing a more satisfactory theory of evolution. In this sense the theory of economic development in *Entwicklung* and *Business Cycles* might be called a halfway house between *Das Wesen* and *Capitalism*.

In *Entwicklung* Schumpeter already realized that his approach was preliminary. The overall perspective of social life was fully described in the last chapter (chapter 7) of the first edition of *Entwicklung*. This chapter entitled "The Total Picture of Economy" (or "Das Gesamtbild der Volkswirtschaft") consists of 86 pages and is extremely important in understanding Schumpeter's overall research programme; unfortunately it was omitted in the later editions and the English translation for a reason which will be soon mentioned. This chapter should be regarded as a proper theoretical basis of *Capitalism* published thirty years later.

In that chapter he contrasted total or socio-cultural development with

economic development. But usually in Germany at that time (under the influence of the Historical School) the overall historical process was equated to economic development. On the contrary, Schumpeter in *Entwicklung* started from the abstract static theory and tried to construct a theory of economic development as its "protective belt". His theoretical approach was at first not properly taken; instead people's concern was mostly digressed to the description in chapter 7, which he later called "a fragment of the sociology of culture" (or "das Bruchstück von Kultursoziologie") (1926a, p. XI). Therefore, Schumpeter completely eliminated this interesting chapter from the second edition of *Entwicklung* in order to indicate the locus of his own emphasis in that book. Although he certainly hoped to approach the wider area in the future, he temporarily abstained from placing economic development in a wider perspective of socio-cultural development when he virtually intended, as the task of higher priority, to construct a theory of economic development on the basis of static theory.

On the other hand, he was also criticized for neglecting social and historical factors of change. In a passage quoted above he stressed that in *Entwicklung* he was not concerned with factors of change, but with the mechanism of change; he really meant that in the discussion of development within the area of economy innovation could be dealt with only as an ultimate factor of change, i.e. exogenously. Thus in *Entwicklung* he regarded the discussion of changing economic organization and practice as a separate problem, which should be treated appropriately in a wider perspective.

As seen incidentally from these evaluations, the theory of economic development in *Entwicklung* was looked upon as unsatisfactory. In fact Schumpeter's mind was always ambivalent with regard to pure economic theory and socio-cultural history. Although he called entrepreneurial innovation an endogenous factor which changes the data from within an economy, this is not exact. It is a limit of his theory of economic development that innovation is as a matter of fact exogenous to economic analysis.

Only in the overall perspective an endogenous explanation of economic development could be available. When Schumpeter limits himself to the economic area, he defines capitalism as a system of economic institutions, i.e. private ownership, motive for private profit, and bank credit. On the other hand, when he takes a broader view, capitalism is conceived as a civilization including also political institutions, the class structure, a way of thinking, value systems, science and art, styles of life, etc. It is presumed that among various areas of social life there are interrelations so as to form a grand general equilibrium. The theory of economic development conceived in the economic area is not sufficient to indicate the historical behavior of

the capitalist society as a whole and is therefore no match for Marx's analysis of capitalism.

An approach to the total development of capitalism would require two things: first, to estimate the influences of economic development on noneconomic areas, and second, to estimate the reverse influences of noneconomic factors on the emergence of innovation. *Entwicklung* found innovation as the cause of development in the economic area, but failed to explain what circumstances determine innovation; therefore, innovation remained an exogenous factor to an economic system in spite of his contrary assertion. Explanation of innovation is made possible in a wider context comprising economic as well as noneconomic areas. A more or less comprehensive discussion of capitalism in such a context is finally provided in *Capitalism*.

Marx as Ideology

When Schumpeter grappled with the process of change in the capitalist society as a whole with a perspective wider than the economic one, he learnt the ideology of endogenous evolution and self-destruction of capitalism from Marx. It is "a vision of economic evolution as a distinct process generated by the economic system itself" (1937, p. 2).

According to Marx's materialistic or economic interpretation of history the forces of social evolution should be found in a conflict between forces and relations of production. Schumpeter appreciated this view as of "first rank importance" and put its essential points into the propositions (1954, p. 439): (1) All the cultural manifestations of a society are ultimately functions of its class structure. (2) A society's class structure is ultimately and chiefly governed by the structure of production. (3) The social process of production displays an immanent evolution. These propositions are formulated by Schumpeter so that the Marxian color should be minimized.

Although Schumpeter repeatedly praised Marx's analysis of social evolution and emphasized the similarity of his own view and purpose with Marx, he denied all the analytical apparatus and historical scenario of Marx. It was only an extremely general view of an immanent evolution and self-destruction of capitalism summed up in proposition (3) that Schumpeter virtually inherited from Marx. This I call Marx's ideology *M* in Schumpeter. Schumpeter wrote on Marx's vision:

> [T]he grand vision of an immanent evolution of the economic process – that, working *somehow* through accumulation, *somehow* destroys the economy as well as the society of competitive capitalism and *somehow* produces an untenable

social situation that will *somehow* give birth to another type of social organization – remains after the most vigorous criticism has done its worst. It is this fact, and this fact alone, that constitutes Marx's claim to greatness as an economic analyst (1954, p. 441; italics added).

Schumpeter intended to describe the total process of capitalistic development by a different apparatus and a different scenario but still on the basis of Marx's ideology. He regarded as non-Marxian all of the "somehow's" italicized in the above quotation. We call Schumpeter's theory of socio-cultural development M', which should be consistent with Marx's ideology M; here too, M' is to M what a "protective belt" is to a "hard core". How does M' differ from the Marxian theory? It is convenient to use Schumpeter's three propositions as a frame of comparison.

With regard to proposition (1), Schumpeter denied the Marxian causal relation that the superstructure is unilaterally determined by its economic foundation and class structure, and merely admitted the functional relation between them. Rather in his analysis of capitalist evolution the reverse relation that the superstructure governs the economic process is crucial. Since Marx could discuss changes in the economic system within the orbit of the understructure, any analysis of the superstructure was merely a corollary of the main themes about the understructure. But Schumpeter tended to argue changes in the economic system in terms of the interrelations between the superstructure and the understructure. I would say that the notion of socio-cultural development based on the general interdependence of multifarious areas of social life is Schumpeter's substitute for the Marxian economic interpretation of history.

As for proposition (2), Schumpeter claimed that the class structure is also determined by diverse factors other than economic ones, and particularly paid attention to the dynamic phenomenon that the contents of classes are changing like "a hotel or an omnibus, always full, but always of different people" (1951a, p. 165). His theory of social classes does not occupy such a pivotal position linking the superstructure with the understructure as Marx's theory. Instead it represents a final summary of social investigation in terms of the general interdependence.

Let me start from the interesting fact that Schumpeter regards the class phenomenon as one of the areas of social life, described in chapter 7 of the first edition of *Entwicklung*. In his view of the comprehensive social sciences a certain area of social life can establish itself as the object of an autonomous science by identifying three things: (1) a type of man which is specific to the area, (2) equilibrium under certain data which exogenously define the

area, and (3) the developmental activity which endogenously destroys the existing equilibrium. In the light of these criteria the phenomenon of social classes indeed involves groups of men, but they are different from those specific types of persons which characterize each area of social life. Persons in the phenomenon of social classes are a total set of persons who work in various areas of activity; as it were, people from different local areas meet together in a hotel or an omnibus.

The social function of class structure is "social leadership" (1951a, p. 210) in a general sense. In each area of social activity there is a distinct sort of leadership, i.e. the ability of carrying out innovation, and people are ranked ultimately according to their different aptitudes with respect to leadership. Social classes are the compound results of various kinds of leadership, and a play of leadership brings about changes in social classes.

If a compound of performance in various areas of social life is the class phenomenon, it would not be adequate to explain social classes by the functional categories peculiar to the economic area, particularly by the two categories of labour and capital as Marx did. In Marx the concept of social classes played a pivotal role because in his view social classes are determined exclusively by the structure of production, and also because in his view the superstructure is a reflection of class structure. Since Schumpeter denies both views, his theory of social classes does not mediate between the superstructure and the understructure; the class phenomenon is rather an aggregate summary of performance in all areas of social life.

As for proposition (3), Schumpeter accepts only its general vision of the immanent social evolution. The Marxian substance of that proposition was jettisoned because propositions (1) and (2) were denied. Schumpeter carried out such an ingenious recast of Marx's economic interpretation of history by introducing Walras's ideology into a wider perspective of social life. We must now move to this problem.

Coordination of Walras and Marx

Schumpeter's *Capitalism* discussed the interrelations between economic and noneconomic areas of the capitalist society from a long-term point of view and reached the conclusion that capitalism would collapse on account of its economic success. The way of his reasoning is that successful economic development has influences on noneconomic areas, which produce in turn unfavorable effects on innovation in economic area. Schumpeter's analysis of social evolution in this perspective is what we called M'. He raised the

following factors as unfavorable reactions on the economic area: (1) the obsolescence of entrepreneurial function due to mechanization and routinization of innovation, (2) the disappearance of favorable factors due to the development of rationality, (3) the growth of a critical attitude among intellectuals against capitalism, (4) the decline of private vitality due to government intervention, and (5) the decay of the capitalistic moral values.

In appraising Schumpeter's argument we claim that the method of analysis which he put forward is much more valuable than the conclusion about the future of capitalism which he projected. His method is to inquire into the relationship, i.e. consistency or inconsistency, between the economic and noneconomic spheres, between the economy and the civilization.

The vision which lies at the basis of this analysis is given partly by Walras's ideology that the capitalist market system is essentially stable, and partly by Marx's ideology that capitalism will break down by its immanent development. The apparent contradiction of these two ideologies is saved by the idea that the very success of the capitalist economy will produce the noneconomic factors which are inconsistent with it; that these factors will then worsen the economic performance of capitalism. In short, although the economy can work successfully by itself, the impacts of external factors will ultimately spoil it; but taking account of the fact that the reactions of the noneconomic factors were the results of economic development, we can only assume a grand general equilibrium between the economic and noneconomic spheres.

We have said above that Schumpeter's theory of economic development W' is structured as a "protective belt" to Walras's ideology W (i.e. a belief in the inherent stability of capitalism), which gives a "hard core" to Schumpeter's system. We now have Schumpeter's analysis of historical development M' as another "protective belt" to Marx's ideology M (i.e. a belief in the self-destruction of capitalism), which gives another "hard core". How should we interpret the two sets of theories in Schumpeter?

For the sake of convenience, let us represent innovation as I, the state of the economic area as E, and the state of the noneconomic area as N. Therefore,

$$E = F(I)$$

stands for the total process described in *Entwicklung*: the economy will converge, by experiencing the business cycle, on a certain equilibrium state in response to innovation. Then,

$$I = G(N)$$

gives a specification of the effects which the noneconomic factors have on innovation. If innovation can be seen as an institutional factor determining the economic area, this equation properly belongs to economic sociology [10], where innovation as one of the determinants of economic changes is in turn explained endogenously in a wider context. Combining two functions, we can write

$$E = F[G(N)] = H(N).$$

In the economic area where the function G is unknown, innovation plays an important role as an exogenous factor, but in a wider perspective innovation is after all a factor which can be eliminated by substitution. As far as the economic area is concerned, only important is the mechanism of passive adaptation to the noneconomic factors, and this mechanism is indicated by the function H which is the compound of F and G.

On the other hand, the consequences of economic development will affect the noneconomic area, which can be shown as

$$N = J(E)$$

In Marxian terms this function would indicate a theory of the superstructure.

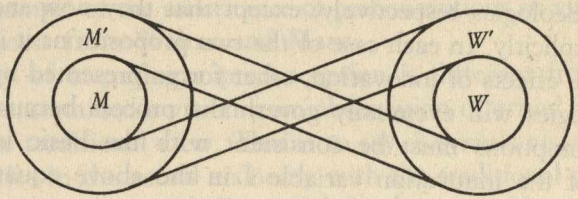
The functions H and J with the variables E and N form a grand general equilibrium which covers the economic and noneconomic areas. Schumpeter did not analyze these functions in detail or comprehensively; the factors (1)-(5), which he mentioned in *Capitalism* and can be interpreted as an analysis of the functions H and J, are not necessarily inclusive. Rather it is important with respect to his analysis that these functions are of a historical nature and do not have theoretical reversibility.

The essence of the historical scenario in Schumpeter's view on the future of capitalism is an approach to the "socio-cultural development" as a whole, i.e. what might be called the interdependent interpretation of history, which takes the place of the economic interpretation of history. The economic mechanism of capitalism is in itself a good-working machinery, but those who manipulate it are not abstract economic men but are placed

[10] Schumpeter distinguishes four techniques of economic analysis: history, statistics, theory and economic sociology. While economic theory deals with the behavior of people and its effects, "economic sociology deals with the question how they [people] came to behave as they do" (SCHUMPETER, 1954, p. 21). In other words, in economic theory actions, motives and properties are given under given social institutions; economic sociology is concerned with the institutional data of economic theory.

in a political, social and cultural context. As long as men with such a style of life undergo a long-term transformation in the epoch of economic abundance, they will become unfit for handling the machinery of capitalism, and it is inevitable for a society to get rid of such an ill-fitting skin.

Methodologically speaking, the coordination between Schumpeter's theory of economic development, on the one hand, and his theory of socio-cultural development, on the other, can be attained by combining two hitherto independent auxiliary hypotheses W' and M' to produce the functions H and J, which specify the interrelations between the economic and noneconomic areas. Symbolically, the coordination can be represented in the following figure.



Walras's ideology is indicated by the "hard core" W, which is surrounded by its "protective belt" W', i.e. Schumpeter's theory of economic development. According to his programme of social scientific research, this theory was not self-contained. Then, Marx's ideology is indicated by another "hard core" M, which is likewise surrounded by its "protective belt" M', i.e. Schumpeter's theory of socio-cultural development. These two sets of theories are jointed to form a grand equilibrium system of social analysis. The joint system, we imagine, is constructed in such a way that the two "belts" are not separate but are extended bilaterally, as it were, as "conductive belts" into another system.

V. Concluding Remarks

Innovation and Ideologies

The concept of innovation plays such a conspicuous role in Schumpeter that the general understanding of his theory is centered around the concept of innovation. Indeed innovation is undoubtedly an evident phenomenon characterizing the dynamism of capitalism. But attention to this fact does

not in itself give any uniqueness to Schumpeter [11]. We shall see how the alleged importance of innovation in Schumpeter's scientific system recedes into the background in comparison with the functions of two ideologies *W* and *M*.

For all his apparent emphasis on innovation the framework of Schumpeter's system essentially consists of two general metaphysical propositions which would paradoxically reduce the substantive importance of innovation. The first proposition is that, in spite of the destroying and destabilizing effect of innovation, the capitalist system has a remarkable capacity of adaptation. The second proposition is that, in spite of growth performance of innovation, the capitalist system cannot survive infinitely. These two propositions are not basically different from what we have called Walras's and Marx's ideologies respectively, except that they now include the term innovation explicitly. In each case of the two propositions it is claimed that, in spite of the effects of innovation, other forces presented by Walras's and Marx's ideologies will eventually govern the process because after all the auxiliary assumptions must be consistent with the basic ideologies. The elimination of the innovation variable *I* in the above equations seems to mean the same result.

The flamboyance of Schumpeter's emphasis on innovation is largely due to the sociological description of successful leadership; the economic description in his theory of economic development was no more than an explanation of phenomena concomitant with innovation by reference to the adaptive mechanism of the economy. To use a metaphor, Schumpeter acted like a magician performing a conjuring trick, who, in order to distract the attention of the audience from the trick, always attracts their attention deliberately to spectacular pops and gestures and thereby creates a false illusion about where the essential process is.

In the following we shall see two characteristic features of ideologies in Schumpeter: nonempirical and nonpolitical orientation. Both features are in striking contrast to the case of Keynes. We shall also make clear some specific consequences of ideologies on Schumpeter's framework of thought.

Nonempiricism

What Schumpeter depended on in drawing a vision of the capitalist

[11] Thus Keynes unreservedly accepted Schumpeter's explanation of economic fluctuations in terms of entrepreneurial innovation (KEYNES, 1930, vol. 2, pp. 85-86). Keynes implied that such a fact is a matter of course; that it would be no creditable theory merely to attribute the dynamism of capitalism to the fluctuations in the marginal efficiency of capital, to use Keynes's terminology.

economy as a prescientific act were the ideas of two predecessors, Walras and Marx. This is deeply connected with his view of science: he emphasized that the development of science creates, beyond ostensible discontinuity, a unified picture through "an incessant struggle with creations of our own and our predecessors' minds" (1954, p. 4). Various scientific efforts are tried to search for some fundamental views, which would eventually be found and recur to scientific minds in the long run in the history of ideas. This is Schumpeter's notion of "filiation of scientific ideas".

He regards as given data not only the object of science but also the tool of science, which, once established as an objective existence and thus as a part of social environments surrounding scientists, would not simply be neglected. With a belief in the continuity of great ideas Schumpeter himself showed an example of the inheritance of preconceptions or visions about the economic process from Walras and Marx.

This way of acquiring a preconception is different from the case of Keynes, who entertained a vision from observation of actual facts and broke away from the traditional view. That is to say, Keynes's vision started from incompatibilities in the actual economy with the traditional view. He came to the perspective that capitalism, if left alone, could not escape from difficulties. As Schumpeter said, this vision of the inherent instability of capitalism was in common with Marx's and different from Schumpeter's in that the economic machinery of capitalism is diagnosed as suffering from inherent defects.

In general, the classical economists viewed reality with the preconception of the inherent stability of capitalism, as Schumpeter did with Walras's ideology. In order to contend the self-destruction of capitalism consistently on the basis of a belief in its inherent stability, Schumpeter recast Marx's theory, as we have seen, so that he could deduce the decline of capitalism through the unfavorable impacts of noneconomic factors, not through the malfunctions of the capitalistic economic machinery.

The idea of the self-destruction of capitalism in Schumpeter did not originate in the observation of empirical facts such as the Great Depression; it was inferred as a logical consequence of successful capitalistic development. The argument developed in *Capitalism* concerning the decay of capitalism and the march to socialism goes back to his earlier writings such as *Die Krise des Steuerstaats* (1918) and "Sozialistische Möglichkeiten von heute" (1920). The crisis of the tax state means a breakdown of a big government in the capitalist economic system. Schumpeter wrote about the future of the tax state, or of the mixed economy, to use the current usage:

> If the will of the people demands higher and higher public expenditures, if more and more means are used for purposes for which private individuals have not

produced them, if more and more power stands behind this will, and if finally all parts of the people are gripped by entirely new ideas about private property and the forms of life – then the tax state will have run its course and society will have to depend on other motive forces for its economy than self-interest. This limit, and with it the crisis which the tax state could not survive, can certainly be reached. Without doubt, the tax state can collapse (1918, pp. 31-32; tr. 1954, p. 24).

Furthermore, the 1920 paper on socialism already dealt with most of the factors which are mentioned in *Capitalism* as leading to socialism.

His argument on the decay of capitalism is independent of an awareness of economic crisis or a political interest and belongs to the habit of thought taken by the stage theory of development in the German Historical School, according to which in this case the stage of socialism would be hypothesized as the successor of capitalism. His interpretation of the Historical School, especially of Gustav Schmoller provided a basic method for coordinating a theoretical model W' and a historical model M' [12].

Nonpolitical Orientation

Exclusion of normative discussion constitutes Schumpeter's scientific work. We shall explore this characteristic with reference to his ideology. The important distinctions between Schumpeter and Keynes have also bearing on this respect. In the 1920s and the 1930s both were engaged in the studies of economic fluctuations but with different perspectives.

Schumpeter distinguished between economic theory as science and economic policy as practice and asserted that "no science thrives... in the atmosphere of direct practical aim, and even practical results are but the by-products of disinterested work at the problem for the problem's sake" (1933, p. 6). Although economics was born out of discussions of practical issues, the progress of economics as science was made possible by an escape from politics and ethics. Schumpeter was convinced of such a view of science from his extensive studies in the history of economics.

When Keynes's *General Theory* was published, Schumpeter did not seem to understand correctly its theoretical points, but he had a keen nose for distinguishing a political orientation in Keynes's theory. In his review of the *General Theory* Schumpeter regarded Keynes's attempt as offering, in

[12] In this respect SCHUMPETER's long article on Schmoller (1926b) is important, but it is not possible to discuss it here.

the garb of general scientific truth, policy recommendations which carry meaning only with reference to the practical exigencies of the unique historical situation, and stated:

> This sublimates practical issues into scientific ones, divides economists... according to lines of political preference, produces popular successes at the moment, and reactions after – witness the fate of Ricardian economics – neither of which have anything to do with science (1936, pp. 791-792).

This appraisal anticipated the immediate triumph of the Keynesian economics and the controversy between the Keynesians and the Non-Keynesians in our time.

It is a mistake, however, that Schumpeter was not interested in policy issues. He warned economists against indulging in hasty policy discussions without a fundamental understanding of situations; he did not deny at all applying science to recommendations. He even said that "I am speaking of science which is technique that turns out the results which, together with value judgments or preferences, produce recommendations, either individual ones or systems of them" (1949, p. 349). He thought that science, as can be seen in natural science, should be neutral technique which must be applied to whatever objective man may choose. But as we have argued, science is affected by ideology at a prescientific stage; ideology does not appear first at a stage of application of science, but exists already before scientific activity starts, and determines the direction and pattern of science. Keynes's case is a typical example that a policy orientation has essentially affected the ways of model building. As Schumpeter himself expected, however, in the stage of scientific cognition ideology should be eliminated by the tests of factual observation and logical analysis, although this is an open question in the philosophy of science.

Schumpeter criticized Keynes on two major points. The first criticism is against Keynes's aggregate method. As we have seen, an economic system, according to Schumpeter's preconception, can only be analyzed in terms of general interdependence. From this point of view Keynes's method is considered as picking up some variables which are directly relevant to practical problems and freezing all others for the sake of simplicity; thus it establishes simple macro relations among selected variables to get the conclusions which are desired [13].

In Schumpeter's interpretation Keynes's vision was that although investment opportunity declines, saving habits persist so that capitalism will

[13] Schumpeter called this method the "Ricardian Vice" and stressed the similarity between the aims and methods of Keynes and Ricardo (SCHUMPETER, 1954, p. 473).

fall into functional disorder. In order to develop this vision theoretically Keynes constructed a model by means of three schedules: the consumption function, the efficiency-of-capital function, and the liquidity-preference function. Schumpeter admired the skill of Keynes: "what a *cordon bleu* to make such a sauce out of such scanty material!" (1951b, p. 281). But this was clearly a touch of irony. His skepticism of macro economic analysis was consistent, and he stated about the saving-investment relation that "the saving-investment mechanism, as such, does not produce anything that could qualify for the role of an explanation of crises or depressions" (1939, vol. 1, p. 78).

His second criticism is concerned with Keynes's short-term analysis. While Keynes dealt with some aggregate variables, freezing all other factors, what was most intolerable to Schumpeter was Keynes's assumption that methods of production and the quantity and quality of capital equipment are not allowed to change. In Keynes's theory "*all the phenomena incident to the creation and change* in this [industrial] apparatus, that is to say, the phenomena that dominate the capitalist process, are thus excluded from consideration" (1951b, p. 283; italics original).

For Schumpeter himself the waves of boom and depression are natural in the capitalist economy like the beats of the heart or the ebb and flow of the tide, and it is silly to let oneself affected by temporary economic fluctuations without realizing the mechanism of capitalist development at work. Unemployment is essentially a temporary phenomenon which characterizes the period of adaptation subsequent to the prosperity phase. Whereas Keynes took this phenomenon seriously and made the vanishing of investment opportunity a vital point of his argument, his explanation of the investment process seemed to Schumpeter entirely unrealistic; Keynes's explanation that the lack of inducement to invest will produce unemployment had no greater practical importance to Schumpeter than a statement that "motor cars cannot run in absence of fuel" (1936, p. 794).

Schumpeter's criticism does not mean that aggregate and short-term analysis is in itself defective or meaningless. Schumpeter admits that, as far as Keynes's vision is given, his theory is ingeniously and adequately devised: "they [Keynes's conceptual arrangements] fit his purpose as a well-tailored coat fits the customer's body" (1951b, p. 287). It is to this extent that Schumpeter praised Keynes as a brilliant economist.

It is thus clear that Schumpeter's objection to Keynes was based on his own ideology. But the fact that Keynes does not start from Schumpeterian or Walrasian ideology cannot lead to the conclusion that Keynes's theory suffers from errors, in so far as it is constructed in accordance with scientific procedures. In opposition to Keynes's aggregate and short-term analysis,

Schumpeter himself adopts a general equilibrium approach with a long-term perspective. Schumpeter's analysis of "social culture" as a whole is, as it were, an enlarged version of the general equilibrium analysis. The strength and weakness of Schumpeter lies in the work emphasizing the interdependence of all relevant factors. Walrasian general equilibrium of an economy and total socio-cultural development of a society are, for Schumpeter, equally the products of the same mind. His analysis of capitalism in the enlarged perspective is so extensive as to include policies and ideals as endogenous variables. In this framework it is logically not possible to derive practical recommendations because all elements in it are endogenously determined. This is the logical reason why Schumpeter averted from policy recommendations. The aversion to policy orientation now stems not so much from his own inclinations as from his model which works by itself independently of an initial ideology.

The usual procedure in a policy model is to select the policy or action variables as exogenous to the model in question: for example, Keynes's money supply and Marx's revolution are exogenous variables in this sense. On the contrary, in Schumpeter's comprehensive model of socio-cultural development a society is viewed as moving by its own momentum. His model has provided a unique framework for finding the "logic of things" in the total or socio-cultural development of capitalism, i.e. a framework for analyzing the coordination between economy and civilization (social system, style of life, system of values, etc.) of capitalism.

Beside its perspective of general interdependence another feature of Schumpeter's model is its long-term perspective; this is also a corollary of his ideology that in the long run the capitalist economy is stable. However, verification or falsification of a theory of socio-cultural development is not easy because under his long-term perspective "a century is a 'short run'" (1950, p. 163). Therefore, one cannot always expect that the underlying ideology will become extinct in the capacity of ideology as far as a long-term theory is concerned. It follows that when Schumpeter in the name of science criticized Keynes for his practical orientation and specifically for his aggregate and short-term analysis, he himself was not free from the ideological bias underlying his own general equilibrium approach with a long-term perspective. His criticism of Keynes cannot be understood apart from his ideology.

As to the scientific contribution of Schumpeter, his framework of analysis is more important than his conclusions reached with regard to the future of capitalism. Whether or not we agree with Schumpeter's ideologies W and M, we can take seriously his analytical framework consisting of W' and M', because he has provided us with a framework of thought to cope

with the grand problem of interaction between economy and civilization. Schumpeter's ideology must be appraised not in itself but as a prescientific act for producing such a framework.

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SCIENZA E IDEOLOGIA IN SCHUMPETER

Nei suoi studi di metodologia e di storia dell'economia Schumpeter sottolinea il posto dell'ideologia nella conoscenza scientifica. La sua impostazione intro-

duce la sociologia della scienza nella filosofia della scienza e anticipa l'impostazione post-positivistica e in particolare la concezione di Lakatos.

I concetti di Lakatos di « hard core » e di « protective belt » sono utilizzabili al fine di comprendere la natura di scienza e ideologia nel sistema di pensiero di Schumpeter che intende occuparsi dello sviluppo socio-culturale del capitalismo nel suo complesso.

Schumpeter ebbe una duplice radice ideologica con un conflitto interno: l'ideologia walrasiana (ossia il convincimento della fondamentale stabilità del capitalismo) e l'ideologia marxista (ossia la fede nella autodistruzione del sistema capitalista). La sua teoria dello sviluppo economico può essere interpretata quale « protective belt » attorno alla teoria statica walrasiana che si afferma quale sua ideologia nella forma di « hard core ». Malgrado la sua insistenza sullo sviluppo economico e l'innovazione, egli non nega mai la teoria statica; al contrario il concetto statico di equilibrio gli permette di venire a capo degli effetti disordinati dell'innovazione. Proprio perché Schumpeter credeva nella stabilità sostanziale e nella capacità di aggiustamento dell'economia capitalista, egli fu in grado di trattare il fenomeno dinamico che consiste nella distruzione dell'equilibrio esistente. Egli però non riuscì a elaborare un modello utilizzabile di sviluppo economico, in parte perché si limitò a descrivere gli effetti dell'innovazione e in parte perché era troppo ambizioso circa gli obiettivi della dinamica economica.

La teoria dello sviluppo economico di Schumpeter copre soltanto una metà del suo mondo. L'altra metà, ossia il mondo dello sviluppo storico socio-culturale, si basa sopra la visione generale di Marx sulla evoluzione endogena immanente della società. Schumpeter non accettò mai sostanzialmente l'analisi di Marx; egli accettò soltanto l'ideologia marxista della evoluzione endogena autodistruttiva del capitalismo. La teoria schumpeteriana dello sviluppo socio-culturale rappresenta una « protective belt » attorno alla ideologia marxista come altro « hard core » del sistema schumpeteriano.

In questo più largo modello di sviluppo capitalistico l'innovazione è ora spiegata endogenamente in termini di fattori non economici, un modello che incidentalmente pone rimedio ai difetti propri del modello di sviluppo che si limita ai fattori puramente economici.

Così come appare nella *Entwicklung* la teoria dello sviluppo economico non è autonoma e completa nei termini del programma scientifico di ricerca sociale dell'autore; si tratta piuttosto di una costruzione a mezza strada tra la teoria statica del *Wesen* e la teoria della storia economica dei *Business Cycles*.

L'apparente contraddizione, tra le ideologie marxiana da un lato e walrasiana dall'altro, viene risolta all'interno di un più grande equilibrio generale tra l'area economica e l'area non economica. Questa superiore concezione traduce il contributo scientifico di Schumpeter alla comprensione della interazione tra economia e civilizzazione. La sua ideologia, in se stessa nonempirica e nonpolitica, deve essere valutata, non tanto in se stessa, ma quale atto prescientifico capace di generare quella concezione.

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SCHUMPETER ON WALRAS, MARSHALL, AND BEYOND

by
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Abstract

Schumpeter's different and, to a considerable extent, diverging appreciations of Walras on one side and Marshall on the other do illustrate how an economist of grand vision and multifaceted interests, as he was, was prepared to attach an extraordinary weight to the 'engine of economic analysis' and to advances in the mathematization of economics. May be he was too ready to admire in others what he himself had not.

Schumpeter extolled Walras as the greatest of all economic theorists and his theory of general economic equilibrium as his claim to immortality and the Magna Carta of scientific economics. While praising Marshall's achievements, Schumpeter denigrated him as a pure economic theorist. As is well known, Schumpeter viewed progress in economics essentially as improvements in the analytical apparatus (a view particularly stressed nowadays by Lucas). Indeed, the following passage, alluding to Marshall, is revealing of Schumpeter's (1954, p. 954) stance:

> The truth that economic theory is nothing but an engine of analysis was little understood all along, and the theorists themselves, then as now, obscured it by dilettantic excursions into the realm of practical questions.

His attitude, of course, prompts us to ask two more basic questions: namely Schumpeter's frame of reference and the legacy that he left for contemporary economics. In this paper the vast territory can be traversed only selectively and more questions will be asked than we can answer.

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Basically, I shall concentrate on what Schumpeter thought of Walras and Marshall, why he thought that way, and how his thinking has influenced the economics of our age.

1. *Schumpeter on Walras and Some Subsequent Evaluations*

As mentioned, Schumpeter placed Walras at the apex of the totem pole of theoretical economists. It is for his static general theory of the economic universe and particularly for his mathematical approach and his comprehensive equations of general equilibrium that Schumpeter accorded Walras this place. Schumpeter (1955, p. 74) praised Walras's single-mindedness in his devotion of all his concentration to the problems of pure economics, without any deviation, so that the unity of the whole picture remains intact. It seems that Schumpeter (1955, p. 75) was particularly attracted to Walras's method, his manner of looking at things, rather than the vision of general economic equilibrium. He (1954, p. 1004) points explicitly to Walras's awareness of the need to establish every point in his analytical construct by formal proof (whatever the success or defects of his proofs) which made him "the teacher of all theorists of the future".

Schumpeter (1954, p. 827) sees economics as a large vehicle whose passangers are endowed with incommensurate abilities and interests:

> However, so far as pure theory is concerned, Walras is in my opinion the greatest of all economists. His system of economic equilibrium, uniting, as it does, the quality of 'revolutionary' creativeness with the quality of classic synthesis, is the only work by an economist that will stand comparison with the achievements of theoretical physics. Compared with it, most of the theoretical writings of [the 1870-1914 period] ... – and beyond – however valuable in themselves and however original subjectively, look like boats beside a liner, like inadequate attempts to catch some particular aspects of Walrasian truth. It is the outstanding landmark on the road that economics travels toward the status of a rigorous or exact science and, though outmoded by now, still stands at the back of much of the best theoretical work of our time.

The fundamental grasp of the pervading mutual interdependence of all economic phenomena (prices and quantities) and the investigation of how things hang together had its predecessors, but Schumpeter (1954, p. 242) credits Walras with its complete discovery. He describes the Walrasian "system of equations, defining (static) equilibrium in a system of interdependent quantities... [as] the Magna Carta of economic theory – the technical

imperfections of that monument of constitutional law being an essential part of the analogy". In a sense Schumpeter (Ibid.) perceives the history of economic analysis as divided into two periods: the pre-scientific (or pre-Walrasian) and the scientific (or post-Walrasian). He points out that the history of economic analysis or at least of its "pure kernel" could be conceived of as a gradual emergence into the light of consciousness.

Schumpeter (1954, p. 968) correctly recognized that the Walrasian system "brought in a host of new problems of a specifically logical or mathematical nature that are much more delicate and go much deeper than Walras... had ever realized. Mainly they turn upon determinateness, equilibrium, and stability".

Without anticipating here the modern developments, it should be noted that Schumpeter (1954, p. 1006) considered it unjust and meaningless to object to Walras's work on the grounds that "Walras... believed that this existence question is answered as soon as we counted 'equations' and 'unknowns' and have found that they are equal in number". One can only applaud Schumpeter's extraordinary generosity to the pioneer, particularly in view of some modern economists denigration of their predecessors and mentors on the grounds of lack of sophistication of their mathematics. Thus Schumpeter (Ibid.) argues that, though Walras's mathematical equipment was obviously deficient, he sensed almost all the relevant problems and almost always achieved the appropriate answers. "If he failed to answer all questions satisfactorily, there was immortal merit in his having posited them. If his work is not the culmination of this type of analysis, it certainly is its foundation".

Furthermore Schumpeter (1954, p. 1007) asks the pertinent question whether modern economists cannot do better than Walras. Referring to the work done in the 1930s and 1940s (by Wald and the Vienna group), Schumpeter recognizes that, though more rigorous statements of the conditions on which the existence and the like of the theoretical solutions were provided, nevertheless "Walras' analysis emerges substantially unimpaired".

Schumpeter (1954, p. 1008) sees one of the greatest merits of Walras's work in the distinction he drew between the issues of existence and stability:

> [Walras] treated the problem of stability in a peculiar way, because it posed itself to him in connection with what in strict logic is an entirely different problem, namely, the problem of the relation between the mathematical solution of his equations and the processes of any actual market: first and foremost he was anxious to show that the people in the market, though evidently not solving any

equations, do by a different method the same thing that the theorist does by solving equations; or, to put it differently, that the 'empirical' method used in perfectly competitive markets and the 'theoretical' or 'scientific' method of the observer tend to produce the same equilibrium configuration. Posing this problem then naturally puts the question of stability into the foreground, that is, the question how the mechanism of competitive markets drives the system toward equilibrium and keeps it there.

Since it is clear from the outset that the markets of real life never do attain equilibrium, this question can only be posed for markets that are still nothing but highly abstract creations of the observer's mind.

At this point one can only allude to the two modern streams of general equilibrium analysis: one concerned with the problems of stability and the laws of working of the general equilibrium system (primarily associated with Hicks and Samuelson) and the other concerned with existence and the like (primarily associated with Arrow, Debreu, and McKenzie). (Cfr. Arrow, 1984; Arrow and Hahn, 1971).

Though he grants that Walras left us an unfinished product – a "huge research program" – Schumpeter (1954, p. 1026) is prompt to stress that "it still is, owing to its intellectual quality, the basis of practically all the best work of our own time".

Schumpeter (1954, p. 1015) grants the potential student's discomfort with the descrepancies between Walras's construct and real life processes, but, drawing his analogy from physics, Schumpeter asks "whether he ever *saw* elastic strings that do not increase in length when pulled, or frictionless movements, or any other of the constructs commonly used in theoretical physics; and whether, on the strength of this, he believes theoretical physics to be useless". In the same breath, however, he (Ibid.) stresses that "it remains true... that both Walras himself and his followers greatly underestimated what had and has still to be done before Walras' theory can be confronted with the facts of common business experience". Here, Schumpeter (Ibid.) draws an all too obvious parallel between Walras and Marshall: "We can learn from Marshall how to put flesh and skin on Walras' skeleton, although it does remain true that a more realistic theory raises a world of new problems that are beyond Walras' (and also Marshall's) range" (Cf. Marshall, 1920; Walras, 1954).

Schumpeter extolled Walras's "brilliant" development of the theory of competitive exchange of two commodities and posed the question of an alternative mechanism of reaction than that considered by Walras. He (Schumpeter, 1954, p. 1012) correctly emphasized the deficiency of Wal-

ras's approach to production theory, and his imposition of "heroic" assumptions to reduce the problem of production to manageability.

> We may balk at the assumptions. We may question the value of a theory that holds only under conditions, the mere statement of which seems to amount to refuting it. But if we do accept these qualifications and assumptions, there is little fault to be found with Walras' solution.

Schumpeter adds:

> Those who, like myself, do not go so far, must rate the pioneer performance as such very highly and see a merit precisely in the fact that Walras chalked out the work that had (in part still has) to be done in the future.

It is noteworthy that Schumpeter (1954, p. 1006-1007) emphasized the strictly static structure of Walras's theory and pointed out that

> Walras treated only a problem in the pure logic of simultaneous determination of variables, and therefore neglected, e.g., all lags of any kind, the explanatory value of this part of his argument does not go beyond clearing up one of the many aspects that even pure theory must attend to.

Walras's scheme of instantaneously equilibrating markets and free competition is of great interest not only for its own sake, but also because it sheds light on some recent developments in general equilibrium theory and in equilibrium business cycle theory. Schumpeter (1954, p. 1002) clearly realized that Walras's static logical skeleton of economic life is a highly artificial methodological fiction. Walras attempted to construct an equilibrium state from its inception, in such a manner as "if smooth and instantaneous adaptation of all existing goods and processes, to the conditions obtaining at the moment, were feasible".

It is of some interest to point out that with considerable prescience of recent developments in macroeconomics, Schumpeter (1954, p. 999) strongly, and in my view incorrectly, emphasized "that it is not correct to contrast income or macroanalysis of, say, the Keynesian type with the Walrasian microanalysis as if the latter were a theory that neglects, and stands in need of being supplemented by, income and macroanalysis".

Walras's interpretation of pure competition includes the parametric function of prices (excludes price strategy) and Jevons's Law of Indifference. With his profound insights into how our economy works, and a cany anticipation of later controversies about efficacy of adjustment and learning

processes, operation of markets, competition, rationality of agents, future markets, and the like, Schumpeter (1954, p. 973) observes:

> But exclude 'strategy' as much as you please, there still remains the fact that this adaptation will produce results that differ according to the range of knowledge, promptness of decision, and 'rationality' of actors, and also according to the expectations they entertain about the future course of prices, not to mention the further fact that their action is subject to additional restrictions that proceed from the situations they have created for themselves by their past decisions.

Though Walras was aware of these difficulties and in certain places (particularly in the concluding part of the *Elements* – what Jaffé calls *Coda*) foresaw the future need for building dynamic schemata to take them into account, his self-appointed task, as Schumpeter (1954, p. 974) points out, was to simplify heroically. (Cf. Walker, 1983; Walras, 1954).

Reading Walras and Jaffé's scholarly commentaries one is under the impression of an integral unity of Walras's analytical structure and social vision, commitment to distributive justice, and the like. Walras himself did not seem to consider his mathematical approach as his principal mission; rather he looked at it as subjugated to his vision of social justice. On the other hand, Schumpeter (1954, p. 827-28) deplored the fact that Walras attached so much importance "to his questionable philosophies about social justice, his land-nationalization scheme, his project of monetary management, and other things that have nothing to do with his superb achievement in pure theory".

Here we can only allude to the Jaffé-Morishima controversy about the ultimate aims of *Elements*, the relation of the latter to the entire corpus of Walras's writings, what the kernel of *Elements* consists of, and Morishima's contention that Walras's general equilibrium construct was founded on a four-class view of society and Jaffé's retort that this is a figment of Morishima's imagination, as well as a number of other issues. Only two points can be made here: (1) One needs to distinguish between the historian's interpretations of what Walras actually aimed at or meant (Jaffé's search) and the approach that attempts to extend, amend, and refine Walras's pioneering analytical construct to make it more dynamic and bring it closer to real life (Morishima's quest) (Morishima, 1977). (2) Whatever the truth about Walras's four-class conception of society, I would only like to stress that his conception of the entrepreneur appears to be emaciated and the diametric opposite of that of Schumpeter, J.M. Clark, Frank Knight, and others (see Schumpeter, 1954, p. 893).

2. *Schumpeter on Marshall and Some Subsequent Evaluations*

Reflecting on the early development of neoclassical economic theory (ca. 1870-1914), Schumpeter (1954, p. 952) stressed the questionable proposition of fundamental unity:

> ...numerous differences in details notwithstanding, Jevons, Menger, and Walras taught essentially the same doctrine. But Jevons' and Marshall's analytic structures do not, in essence, differ more than the scaffolding differs from the completed and furnished house, and note XXI in the Appendix to Marshall's *Principles* is conclusive proof of the fundamental sameness of his and Walras' models.

He (Schumpeter, 1954, p. 953) then asks: why do the structures of these dominant figures look so different? Characteristically he attributes the differences to the many differences in techniques. As the key difference he identifies the use or the failure to use calculus and the system of simultaneous equations. He (Ibid., p. 956) notes that both Walras and Marshall had a regular mathematical training. But whereas the former had more of it than he disclosed, the latter had less than he needed.

Schumpeter (1954, p. 836) spoke of Marshall as "not only a high-powered technician, a profoundly learned historian, a sure-footed framer of explanatory hypotheses, but above all a great economist. Unlike the technicians of today who, so far as the technique of theory is concerned, are as superior to him as he was to A. Smith, he understood the working of the capitalist process. In particular, he understood business, business problems, and businessmen ... He sensed the intimate organic necessities of economic life even more intensively than he formulated them". But Schumpeter (1955, p. 92) did not hold Marshall in high esteem as a theoretical economist and often spoke of Marshall's "subjective originality". In a passage to which many of us may object, Schumpeter wrote in 1941 that "in some sense Marshallian economics has passed away already. His vision of the economic process, his methods, his results are no longer ours". Whatever the great merits of Marshall's accomplishments, "what matters is that his analytical apparatus is obsolete and that it would be so even if nothing had happened to change our political attitudes. If history had stood still and nothing except analysis had gone on, the verdict would have to be the same".

Schumpeter (1955, p. 106) deplores the fact that though Marshall "grasped the idea of general equilibrium he yet relegated it to the background, erecting in the foreground the handier house of partial or particu-

lar analysis". He (Ibid., p. 99) speculates whether Marshall was fully aware of the grave shortcomings of partial equilibrium analysis and how dangerous it might be in unwary hands. Still he (Ibid., p. 100) adds, when critically evaluating Marshall's handy tools "we cannot fail to be struck by the realism of his theoretical thought. Particular equilibrium analysis brings out the practical problems of the individual industry and of the individual firm. It is much more, of course, but it is also a scientific basis for business economics".

Athough the analytic kernel of Marshall's *Principles* is essentially static, as he worked out his theory, he always looked beyond it. As Schumpeter (1955, p. 100) points out, Marshall "inserted dynamic elements whenever he could, more often, in fact, than was compatible with the static logic he nevertheless retained".

To do justice to the *Principles*, Schumpeter (1955, p. 94) observes, one has to look beyond the kernel of the analytic apparatus:

> For behind, beyond, and all around that kernel there is an economic sociology of nineteenth century English capitalism which rests on historical bases of impressive extent and solidity. Marshall was, in fact, an economic historian of the first rank... And his mastery of historical fact and his analytic habit of mind did not dwell in separate compartments but formed so close a union that the live fact intrudes into the theorem and the theorem into purely historical observations.

What really restricts Marshall's creative achievements in pure theory is, according to Schumpeter (1954, pp. 836-37) the dichotomy between Marshall's strictly static theoretical apparatus and his thoughts running in terms of evolutionary change – in terms of an original irreversible historical process. In fact,

> "Marshall was one of the first economists to realize that economics is an evolutionary science... and in particular that the human nature he professed to deal with is malleable and changing, a function of changing environments" (Schumpeter, 1955, p. 93).

Schumpeter (1954, p. 985) does not consider most of the leading economists of the early neoclassical period as "unquestioning addicts of laissez-faire", nor does he view them as "unconditional eulogists of pure competition". He (Schumpeter, 1955, p. 104-105) contends that "Marshall was the first to show that perfect competition will not always maximize output. This, so far as I know the first breach in an ancient wall, yielded the proposition that output might be increased beyond the competitive maxi-

mum by restricting industries subject to decreasing, and expanding industries subject to increasing returns".

Schumpeter (Ibid. p. 105) questionably considers Marshall to be the father of the theory of imperfect competition. He also notes that the Marshallian concept of elasticity of demand may not quite merit all the praise that has been heaped on it. And he emphasizes the Marshallian principle of substitution as the chief purely theoretical difference between Marshall's and Walras's constructs.

At this point we cannot go into Schumpeter's evaluation of the particular tools that Marshall used or his achievements. Of course, Keynes, Stigler, Friedman, Joan Robinson, Beach, Jensen, Lucas, and Whitaker differ sharply from Schumpeter in their evaluations of Marshall. (Cf. Friedman, 1955; Morishima, 1977; Samuelson, 1966; Walker, 1983).

3. *Contemporary General Equilibrium Theory (g.e.t.)*

Here we can only briefly trace the influence of Schumpeter's views on the development of contemporary economics. As is well known, his most famous student, Samuelson, has had a strong impact on modern economics. Here let us simply note that Samuelson (1966, pp. 1501-2) seems to share, albeit with reservations, Schumpeter's evaluation of Walras as "the greatest economist of all times". Similarly Samuelson perceives Walrasian general equilibrium as the peak of neoclassical economics and believes that Marshall delayed its understanding. He views Marshall as the most overrated economist, who was so afraid of being unrealistic that he ended up fuzzy, confused, and confusing. He claims that Marshall's ambiguities paralized the best economic brains on both sides of the Atlantic for decades. His contention that the problem of modern economics is to exorcize the Marshallian incubus has hardly endeared him to those who claim that it is all in Marshall. I have argued elsewhere that Samuelson himself is not free of the "Marshallian incubus". In fact, some of the younger generation economists, for whom g.e.t. is the only game in town, have criticized Samuelson for being too Marshallian. However, the mixture of Walras and Marshall, which manifests itself in varied configurations in time and subjects, and not always as compatible elements, provides one clue to the thinking of this great eclectic.

In the last three decades or so Walrasian g.e.t. has almost completely conquered the bastion of mainstream economic theorizing and many applied fields. Here the highly influential Arrow-Debreu model successive develop-

ments stand out. Marshall wisely said that any short statement in economics is wrong with the exception of this one. With this in mind, but compelled by space limitations, the following attempts to convey the essence of modern g.e.t. and to briefly point to some unresolved problems, leaving the exploration of opposing views to another occasion.

G.e.t. clarifies, inter alia, the extent to which a social disposition of resources can be attained in a highly decentralized economy by a multiplicity of independent decisions (each agent pursuing only private values) coordinated and rendered mutually consistent through the market process. As Arrow and Hahn point out in their standard treatise (1971, p. 1) *General Competitive Analysis*, whatever the origin of the concept of equilibrium, "the notion that a social system moved by independent actions in pursuit of different values is consistent with a final coherent state of balance, and one in which the outcomes may be quite different from those intended by the agents, is surely the most important intellectual contribution that economic thought has made to the general understanding of social processes".

And, it may be added, that no matter what its shortcomings, g.e.t. is a major analytical feat in rigorously modelling the interaction of economic agents. Indeed, many of us respect and appreciate the quite surprising nature of this result and the elegant means by which it is proved. It establishes the astonishing claim that it is logically possible to describe an economy in which millions of agents, motivated only by self-interest and responding to a no more comprehensive information system than prices, can nevertheless achieve a coherent economic disposition of resources. The claim is really astonishing for intuitively one would expect that the multiplicity of uncoordinated self-seeking actions would lead to chaos.

It was a major contribution of Arrow, Debreu, McKenzie, and others not only to demonstrate that a coherent and orderly economic allocation can be theoretically achieved and to specify precisely what conditions must be satisfied to reach this result, but also to show that the outcome has the added property of being Pareto efficient. Indeed, the close relations between Pareto efficiency and competitive equilibrium is the central result both on theoretical and policy planes. The equivalence of the two concepts is known as two fundamental theorems of welfare economics: (1) Every competitive equilibrium is Pareto efficient. (2) For every Pareto efficient allocation there is a redistribution of endowments such that the given Pareto efficient allocation is a competitive equilibrium for the new endowment distribution. The first theorem does not imply that such a state is optimal. On the other hand, the second implies that the questions of distributional judgments can be separated from efficiency considerations. If a decentralized market solution

is adopted and alteration of existing distribution is desired, the analysis implies that the modification proceeds by varying the initial distribution of endowments and then allowing the market to function unhampered – thus, not interfering with the market process.

Naturally, the two theorems are valid only if certain crucial and highly exacting hypotheses are met, such as completeness of all intertemporal and contingent relevant markets (including those for externalities) and absence of significant economies of scale in production. In the real world these hypotheses are frequently invalidated. The issue in point, however, is that by elucidating the required set of conditions, the theory not only shows us what the world would have to be like for the results to be achieved, but it also allows us to focus on the absence of these conditions in the real world and to attempt to take remedial steps. The theory clarifies the potentials and limits of economic analysis.

In terms of some of the questions that it tries to answer, g.e.t. is highly manipulable and flexible. However, when confronted with such problems as historical development, evolution, and fluctuations it is dramatically at a standstill. Indeed many g.e.t. theorists recognize the major unresolved problems which they face. Namely, the relations between microeconomics and macroeconomics, the failures to incorporate imperfect competition, and the failures to account for costs of transactions (essential to the theory of money and asset holding generally). Moreover, the integration of the demand and supply of money with g.e.t. remains incomplete despite attempts beginning with Walras himself. And g.e.t. has been criticized for ignoring other arguments in the utility function, power, status, social approval, or what not that also motivate individuals as well as for ignoring some constraints, capacity for calculation, and political controls.

One of the important questions is whether g.e.t. theorists, while correctly emphasizing the benefits of efficient resource allocation, have neglected the innovative and entrepreneurial spirit and conditions conducive to dynamic efficiency which are the real driving forces of the capitalist economy.

Another essential stream of criticism is concerned with g.e.t.'s reliance on the interactive behavior of rational agents. But rationality is only one of the many facets of human behavior and no monistic theory can be expected to yield reliable predictions. Indeed, the crucial problem is that we do not yet know how to combine "rational" sciences like g.e.t with "non-rational" sciences like psychology and sociology to arrive at accurate predictions.

4. *Frame of Reference*

Schumpeter belonged to a select group of economists of grand vision and multifaceted interests. He had a great appreciation not only for economic analysis, but also for economic history, econometrics, and social economics. His own contributions range through many areas of the vast territory. Yet it is puzzling that he attached such an extraordinary weight to the "engine of economic analysis" and to advances in mathematization of economics when his own comparative advantages lay elsewhere. This puzzle might well be the key to the answer, but my conjectures on this subject are merely preliminary. Schumpeter clearly admired in others what he himself was not. To some extent Samuelson, that astute observer, supports this contention (Samuelson, 1981, pp. 1-2). Moreover, Schumpeter's admiration for mathematical economics may also have been somewhat influenced by Samuelson's early work on *Foundations* which at the time was obviously dazzling in its technical sophistication.

While Schumpeter once observed that most creations of intellect or fancy fade away after a time that varies in interval between an after-dinner hour and a generation, his reputation in the profession seems to be on the rise. Yet he did not achieve the "creatively destructive" impact on the dynamics of economics to which he probably aspired. There is a story that Schumpeter used to tell that is very revealing of his aspirations: It is about his three wishes in life – to be the greatest economist in the world, the greatest lover, and the greatest equestrian – and his disappointment in failing to fulfill the last wish. I recall a statement issued by the Harvard economics department upon Schumpeter's death. It recognized him as one of the four or five great economists of the century (privately some members considered it an exaggeration). Whatever the final verdict, his place in the history of economic thought (and I use the latter term advisedly, rather than analysis) is ensured and the important question is why his influence appears to have been smaller than deserved.

We ask more questions than we can answer.

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SCHUMPETER SU WALRAS, MARSHALL E OLTRE

Schumpeter appartenne al ristretto gruppo di economisti di ampia visione e di interessi molto diversificati. La sua stima e il suo continuo apprezzamento per il sistema walrasiano possono essere messi a confronto col suo atteggiamento più misurato nei confronti di Marshall, del quale egli loda le realizzazioni, pur non attribuendogli collocazione troppo elevata quale teorico puro.

Il fatto che Schumpeter sia stato uomo di grande cultura (in campo economico ma anche storico e sociologico, ad esempio) rende un poco sorprendente la centralità che egli assegna al suo famoso concetto di *analisi* economica e l'importanza che egli sembra attribuire ai progressi matematici nella scienza economica. È chiaro che con ogni probabilità Schumpeter obbediva alla legge psicologica che induce ad ammirare incondizionatamente negli altri, specie nei giovani, quel che noi stessi non abbiamo. Qualche recente osservazione di Paul Samuelson pare confermare questa tesi. Si noti che le inclinazioni di Schumpeter nella direzione qui accennata possono ben avere tratto incoraggiamento e nuovo alimento dal lavoro giovanile dello stesso Samuelson sulle *Foundations*.

L'influenza di Schumpeter in economia non è stata adeguata alla sua statura intellettuale e questo saggio intende mostrare con numerosi esempi la profondità di molte delle osservazioni dello Schumpeter autore della *History* e delle celebri biografie scientifiche (*Ten Great Economists*).

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ECONOMIC SYSTEM AND THE CAUSES OF IRREGULAR ECONOMY

Some preliminary questions for an East-West comparison *

by
BRUNO DALLAGO *

Abstract

The irregular economy is a composite phenomenon which is of growing concern in both capitalistic-type and Soviet-type economies. Five main components of the irregular economy are singled out in the paper on the basis of three criteria. The five components are present within each economic system, but in a different assortment and with different specific features.

Among possible causes of the irregular economy, the paper discusses those linked to the economic system, which, in the last analysis, are the most important. In a capitalistic-type economy, the root cause of the irregular economy is the attempt to directly and indirectly diminish production costs or consumption prices and to increase demand for the firm's own production. In a Soviet-type economy, it is shortage which stimulates the development of an irregular economy, both for enterprises and households.

In recent years a growing interest and concern in the existence and

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nature of the irregular economy has characterized economic, political, and sociological research in the West and the East. Two factors have led to the "discovery" of an irregular economy in Western countries: the realization that the standard of living has been improving during the past decade despite a declining economic growth rate; and the existence of a wide area of tax evasion which has caused major difficulties to fiscal policies. In Soviet-type economies, the irregular economy has been acknowledged due to economic difficulties of the seventies and the realization that the regular economic system has been too rigid to overcome them.

Research and analysis was initiated in both groups of countries during the past decade, with some time-lag, because official admission of the existence of an irregular economy in socialist countries came later; and research is still largely incomplete [1]. Moreover, research has centered either on individual countries or on a single economic system, with no serious attempt to compare the two systems. Since there exists, here, a typical example of different systems giving rise to apparently similar phenomena, comparative analysis can be most fruitful in the examination of both the characteristics and working of economic systems in general, and of the irregular economy in particular.

In this paper, a comparative approach has been adopted to examine the reasons for the existence of the irregular economy, having to do with the prominent features of the two economic systems: the capitalistic-type economic system predominant in Western countries, and the Soviet-type economic system prevalent in Eastern European countries. Other aspects will be considered only marginally.

1. *Regular and Irregular Economy*

Each economic system is characterized by a set of economic, social, and political relations, which are in part settled through a code of law. These relations stem from an historical development in which the majority of people operate within economic institutions and organizations characterized by and working according to these relations. The most important are: ownership, market and plan (resource allocation mechanisms), decision-making, and government relations. Various obligations for the participants are implied in exchange for direct and indirect advantages.

Both regular and irregular economies operate within the same socio-eco-

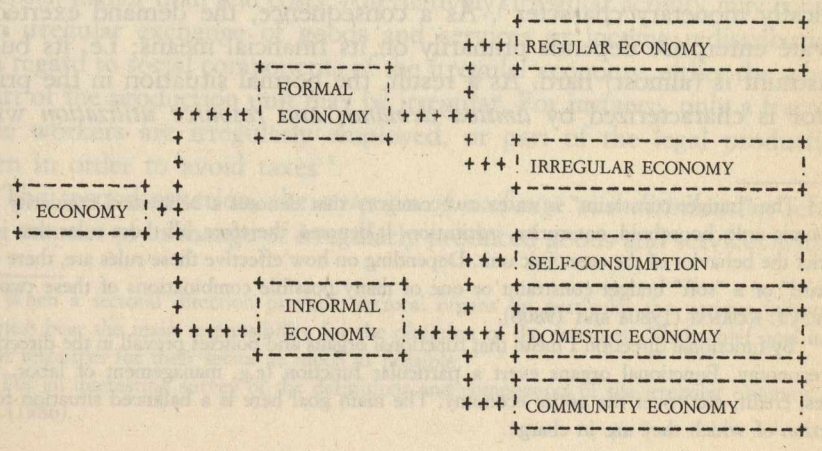
[1] For a survey of major research cf. GROSSMAN (1977); POMMEREHNE and FREY (1981); TANZI (1982); WITTE (1986).

nomic environment. They, therefore, interact with each other; the same people often have both a consumer and/or producer relationship with both; they compete for the same buyers, etc. At the same time, the regular economy is by far more important, both in its dimensions and relationship with society and societal institutions. For this reason, it can be asserted – all the more so if we leave aside the traditional sector – that the fundamental causes for the existence and development of an irregular economy are strictly connected with the nature of the regular economy. The irregular economy, in turn, exerts an often remarkable influence on the regular economy.

By irregular economy, is meant the deliberate attempt to avoid or evade established relations and their implied consequences. Avoidance and evasion may be illegal and the relative activities, "underground", or may be simply unofficial; may assume a direct monetary character, or violate regulations and have only indirect monetary consequences. As a consequence, the irregular economy exists only within the modern, non-traditional sector of the economy. Accordingly, therefore, the "traditional" informal economy, which includes domestic activities and self-consumption in the traditional agrarian sector, is not part of the irregular economy.

These traditional activities, in fact, are due merely to the survival of traditional socio-economic relations, i.e. to the fact that generalized market or plan relations do not exist. Here, producers act in an informal way, not because they want to avoid entering into such relations, but because they have no options other than the direct consumption or exchange of products. The same applies to both the supply of goods and services within a traditional society as well as to domestic activity (including "do-it-yourself"

FIG. 1: A General Classification of an Economy



activities). With this, of course, the existence and importance of a relationship between irregular and informal economy is not denied.

The general classification of an economy here adopted is sketched in Fig. 1.

2. *An Outline of the Capitalistic and Soviet-type Economic Systems*

There are three main points particularly relevant to the comparison of economic systems. The first is the *organization* of the economy. By this is meant ownership relations of the means of production, institutions and units in charge of the direction of the economy (economic policy and planning, as well as administrative direction), and finally, the role and characteristics of individual enterprises. As differences between the systems in this field are well known, the subject will not be dwelt on. The other two points concern, first, the way demand and supply arise and regulate each other (i.e., resource-allocation), and, second, the way resources are normally utilized. Actually, these two points are just different sides of the same coin and together form what can be defined as production relations.

The formation of *supply and demand* and their mutual relationship depend mainly upon the sensitivity of enterprises to costs and to other regulating factors, both monetary and real (physical) in character. Basically, this can be expressed through the concept of a budget constraint [2] which strictly reflects the overall organization of the economy.

In the private sector of a capitalistic economy, the fundamental unit is the (oligopolistic) private enterprise, which depends for its survival largely upon its economic performance. Economic policy is basically of functional, typically monetary character [3]. As a consequence, the demand exerted by private enterprise depends primarily on its financial means; i.e. its budget constraint is (almost) hard. As a result, the normal situation in the private sector is characterized by *limited demand*; and *resource utilization* within

[2] The "budget constraint" is an *ex ante* category that denotes a behavioral regularity of an economic unit: household, enterprise, institution. It denotes, therefore, all those rules that jointly restrict the behavior of the economic unit. Depending on how effective these rules are, there exists a "hard" or a "soft" budget constraint or one of many possible combinations of these two pure cases. Cf. KORNAI (1980a and 1980b).

[3] By functional direction I mean that functional organs and policies prevail in the direction of the economy. Functional organs exert a particular function (e.g. management of labor, taxes, prices, credit, etc.) over the entire economy. The main goal here is a balanced situation for the function of which they are in charge.

enterprises is taut. However, for this very reason, a capitalistic economy generally operates with idle resources at a macroeconomic level.

In Soviet-type economies, on the other hand, a situation prevails in which enterprises have an (almost) soft budget constraint. In fact, the enterprise is not independent but is basically a section of the state budget. It is not important for the enterprise to obtain an economically positive result with given means, but to gather as many resources as possible in order to implement a specified target. As a result, there is general pressure on demand at a microeconomic level. The prevailing sectoral direction [4] of the economy reinforces this tendency and, above all, is responsible for the diffusion of excess demand to a macroeconomic level. The traditional Soviet-type economy is consequently characterized by a situation of generalized shortage, especially of investment goods and manpower. The normal situation of the economy is, therefore, one of *limited resources*: that is, resource utilization is taut at a microeconomic level, even if – or precisely because – within enterprises, there exist idle resources (e.g. the well-known phenomenon of "unemployment behind doors").

3. *Irregular Economy: A Classification*

A third basic point is the working out of a viable classification scheme for inter-system comparison. To this end, three different criteria have been adopted. The first is the *criterion of production*, i.e. the way in which irregular activity takes place. Irregular activity may consist in actual production that increases national income without the possibility of registration in national accounts, or may appear in national accounts in the form of production costs, higher than real costs. Alternatively, irregular activity may consist in an irregular exchange of goods and services or income redistribution. With regard to social components of the irregular economy, either the whole or part of the production unit may be irregular. For instance, only a fraction of the workers are irregularly employed, or part of the legal production hidden in order to avoid taxes [5].

The second criterion, the *criterion of exchange and distribution*, refers to the manner of exchange of irregularly produced goods and services within

[4] When a sectoral direction prevails, sectoral organs (in particular the various industrial ministries) bear the main responsibility for the direction of the economy. Their chief goal is to increase resources for their sector as much as possible.

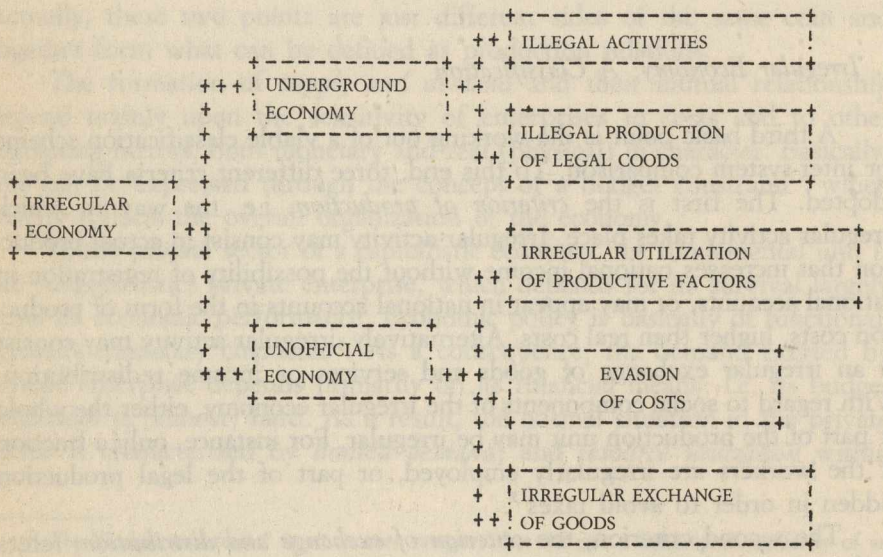
[5] For an interesting survey of the definitions and components of the irregular economy, cf. WILES (1986).

the overall economy (regular + irregular). It refers also to the way in which income redistribution takes place. Accordingly, we have irregular production that remains within the irregular economy, irregular production that enters the regular economy, as well as regular production that enters the irregular economy. Income redistribution may take place in the same way.

The third criterion, the *criterion of legality*, regards the relationship between the irregular economy and (regular) social, political, and economic institutions. Accordingly, irregular production, exchange, and redistribution may be legal (but unofficial) or illegal.

By utilizing these three criteria, four major groups of irregular activities can be isolated. The inclusion of many activities in one group or another depends largely on the point of view adopted. This classification is not the only one possible, but it seems the best suited for a comparative approach. Figure 2 summarizes the taxonomy adopted.

FIG. 2: A Classification of the Irregular Economy



Here, the first component of the underground economy will not be dealt with, i.e. the production of illegal goods and services such as drugs, prostitution, illegal gambling, etc. As regards these activities, the situation is quite similar in both systems, since their illegality generally comes from traditional, political, social, and moral motivations; and any connection with the economic system is rather weak.

The four groups here considered are:

a. Irregular or illegal production of goods and services supplied also by the regular sector. This forms a part of the underground economy. Goods and services in this category are perfectly legal and are usually produced in the regular economy. They are part of the irregular economy because of the way they are obtained: generally the producing enterprise is underground; i.e. either it does not exist officially or part of its production is officially unknown. This is usually the case when operation of a certain type of enterprise is prohibited by law (private enterprises in Eastern Europe, in particular). Here the form of production conflicts with the economic system itself.

Activities such as these may take place independent of the regular economy or may be parasitic to it, working with productive facilities of state-owned or co-operative enterprises and with material inputs and stolen labor. The goods produced may be sold and utilized completely underground or may represent an essential input to the regular economy. Additionally, they may be exchanged for money or in kind [6].

From a strictly economic point of view, this production generally represents a net contribution to the national income. Yet since it is obtained by utilizing the regular economy's manpower as well as its productive assets, raw materials and work time, regular economic costs are artificially raised. In any case, tax evasion occurs.

b. Irregular or illegal utilization of legal productive factors. This represents the first of three components of the unofficial economy. In contrast to the underground economy, neither the economic units nor their activity is hidden. Irregular economic units operate openly; irregularity derives from the fact that either production factors or their origin is irregular; otherwise, there may be an irregular redistribution of income or exchange of goods and services, regular from any other point of view.

This second group comprises those unofficial activities, the most relevant consequence being an increase in production of goods and services. Activities in this group do not harm – at least directly – other activities in the regular economy. Sometimes – as in the case of unofficial activities which serve the achievement of official goals, widespread in the East though known also in the West – they directly improve the situation of the regular

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[6] For a remarkable analysis of the irregular economy in the Soviet Union, cf. GROSSMAN (1977). Cf. also MARS and ALTMAN (1984) for Soviet Georgia and GABOR and GALASI (1981) for Hungary.

activity involved; but they worsen the overall situation and working of the economy. In other cases, they increase the supply of inputs to the economy.

Examples of the former case are the employment of illegal aliens, moonlighting, and the employment of the officially inactive or unemployed. Involved here are tax evasion and unrequired government expenditures (e.g. undue unemployment benefits). Capital obtained from criminal or other illegal activities and invested in the regular economy serves as another example. A prime promoter of this investment activity is the Mafia. Final consequences of this group of unofficial activities are not completely clear.

When methods like those of the Mafia are involved in legal economic activity, the result may be either a higher final price of goods and services or a higher personal or corporate income with lower costs. Most often, a combination of these is found. When workers are controlled by Mafia methods, they have to work for lower than normal wages and are not allowed to strike. Such is the case when a legal activity of a Mafia enterprise (e.g. transportation) is illegally imposed upon another enterprise [7]. Utilization of illegal aliens decreases wage costs directly, and also indirectly, by increasing competition among workers. It has, as a further consequence, the evasion of taxes and social contributions [8].

In some cases, there may be a net increase in the supply of goods and services to the economy with no additional cost to other activities. An example is the unofficial renting or subletting of rooms and apartments. Here, only tax evasion is involved.

c. Avoidance and evasion of costs resulting in irregular income redistribution. This category includes avoidance and evasion of taxes and social contributions. The goods and services produced may be perfectly legal. They become part of the irregular economy because the derived net income is undeclared or underestimated in order to reduce payments to the government. This may be directly achieved simply by hiding an activity. Two indirect methods of evading taxes and social contributions are particularly prevalent, namely artificially increased expenses and enrollment of workers in a category different from their actual one, leading to lower social contributions by the enterprises [9]. Due to decreased production costs, enterprises

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[7] On the economic consequences of the Mafia in Southern Italy, cf. ARLACCHI (1983).

[8] On the phenomenon of illegal aliens in the United States, cf. NORTH and HOUSTOUN (1976); WEINTRAUB and ROSS (1982).

[9] This is, for instance, the case of Italy, owing to the wide gap between contributions paid by employees and the enterprises to which they belong, on the one hand, and autonomous workers on the other.

obtain higher profits; and less efficient enterprises are able to survive competition from more efficient and law-abiding firms.

In any case, this group of irregular activities directly impairs official institutions, mainly by decreasing payments to the government. Activities in this group may, however, increase national income when – thanks to tax evasion or negligence of contribution – such production survives that would ordinarily be pushed out of the market by foreign competition (or firms of the most developed region of the country, in case of relevant regional dualism). Another way to avoid taxes is the exchange of goods and services directly in kind (barter). In some countries, the U.S.A. in particular, specialized enterprises exist for putting sellers and buyers in contact with one another [10].

This case also applies internationally where enterprises or financial institutions operating in one or more countries choose as their legal seat another country where taxes are lower and regulation looser. The same applies to ship transportation and ship registration. Relevant to capitalistic economies, this practice is virtually non-existent in Soviet-type economies.

d. Irregular income distribution and exchange of goods and services. The main component here is bribery for the sake of circumventing competition or other constraints like shortage, which enterprises and individuals must normally confront. The productive or exchange activity in question is, in general, perfectly legal. The end result of bribery is that legal income, (a good or a service) is obtained at a production cost (a price) higher than were it obtained with completely legal means (economies of scale not involved). The difference corresponds approximately to the amount of the bribe paid. Instead of a sum of money, there may be an exchange in kind. In this case, the activities may be less efficient, owing to the absence of competition [11].

Other important components are: work performed elsewhere during the official working time (absenteeism), speculation on goods and services in shortage for private and personal gain, the black market, industrial espionage, and the stealing and pilfering of goods and services from the regular economy.

In any case, such activities cause expenses to the regular economy which have no relation to the economy's regular activity. Thus, costs appear higher, and personal incomes lower than they actually are. This phenomenon is present in both economic systems, though presumably with differing

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[10] Cf. Poe (1981).

[11] On this, cf. Rose-Ackermann (1978) as well as Montias and Rose-Ackermann (1981). On the role of bribery in the Soviet Union, cf. Simis (1982).

intensity: industrial espionage among enterprises is probably most prevalent in capitalistic economies; while black market, stealing and pilfering are more prevalent – at least in peace time – in Soviet-type economies [12].

4. *Motivations of the Irregular Economy and Personal Incomes*

Causes of irregular economy can be divided into subjective and systemic causes. By subjective causes we mean those factors which directly motivate individuals to participate in the irregular economy; by systemic causes, those factors which create an environment permitting and/or fostering the development and operation of an irregular economy.

The fundamental subjective cause of irregular economy in both systems is that the present and future consumption of individuals, their role in the society, the possibilities offered to their families and finally their own psychological satisfaction depend largely upon earned income. These monetary as well as non-monetary compensations constitute a powerful incentive to increase that income through means available. In both systems, the irregular economy offers such an opportunity.

Subjective causes vary, however, according to the characteristics of the economic system. The income incentive is usually stronger in a capitalistic society, because the household's possibilities depend in larger part upon direct earnings. This lends a strong incentive to the seeking of irregular income. In a Soviet-type economy, on the other hand, the wider role of government and social policy decrease the role of personal and household income in determining levels of consumption. Moreover, the possibilities for spending one's income on goods and services are traditionally more restricted.

It is to be noted that the Soviet-type economy is a shortage economy. This means there exist wider opportunities for the operation of an irregular economy. It also means that the developmet of an irregular sector is needed in order that the regular sector function effectively, i.e. for an acceptable supply of inputs, goods and services to both the socialized sector and consumers. There exists, therefore, a "suction" effect that becomes a powerful direct incentive to the development of an irregular economy and that emphasizes an increase in goods and services rather than income.

The connection of irregular economy to family income and corporate

[12] For a well-documented analysis of this phenomenon in the United States, cf. SIMON and WITTE (1982). Cf. also MARS (1982). The basic source for the Soviet Union is GROSSMAN (1977). For Hungary cf. GABOR and GALASI (1981).

profit deserves mention. In a capitalistic society, a higher corporate profit is often a strong direct motivation for the development of an irregular economy. It encourages the cutting of costs (evasion of social security payments, lower wages, tax evasion) and the artificial rising of prices and/or demand (corruption). As a result, profits may be higher or inefficient firms permitted to survive. This indirectly exerts a positive effect on personal income: higher incomes for managers and owners, and an income, however modest, for employed workers. In cases such as stealing on the job, it is personal income which is directly affected.

In a Soviet-type economy, irregular economic activity directly affects personal income and is strongly tied to the achievement of planned targets. Given the shortage economy, enterprises generally have many problems meeting their planned targets because of lack of spare parts, raw material, labor, etc. Thanks to the irregular economy, they often are able to solve their problems. Personal incomes are, thereby, increased, in particular those of managers, insofar as they are linked to the enterprise's achievements.

5. *Economic System and the Development of the Irregular Economy*

Differences between the two systems find expression not so much in their quantitative as in their structural aspects. The influence of the specific features of each economic system on the irregular economy is twofold: first, they permit or foster the development and functioning of the irregular economy; second, they determine its structure. In the following discussion, the most typical components of both economic systems shall be considered: namely, private enterprises and households in the capitalistic-type economic system and state enterprises and households in the Soviet-type economic system.

The subjective causes discussed in the previous section can be seen as the supply side of the irregular economy: they stimulate and determine the supply of labor (including managerial activity) and capital to the irregular economy. In contrast, system causes (that is, the specific features of the economic system) can be seen as the demand side of the irregular economy.

For *enterprises in a capitalistic economy*, which face an (almost) hard budget constraint, the fundamental aims are profit and growth (generally closely connected). This is especially true of large, oligopolistic enterprises. As for small enterprises, their first concern is often survival. Naturally, there are many which fall between these two extremes. The relatively important role of government in the economy somewhat softens the budget constraint

of enterprises. At the same time, it enlarges the role of corruption as a means to increase demand and thereby expand the enterprise and its profitability. In some cases, corruption serves to increase the rate of profit through a price increase. Even in this case, however, the firm must rely largely on its own performance.

It can be seen that the existence of the irregular economy is fundamental to the performance of the economy. It makes possible cost reduction (through evasion of taxes and social contributions, employment of illegal aliens, moonlighting, and an increased flexibility in the utilization of labor). It increases demand (but not aggregate demand) through corruption. It makes possible monopolistic positions through the use of Mafia-like methods. And, finally, it weakens trade unions by dividing workers, making their income strictly dependent upon their performance in a situation where trade unions, as a rule, are not permitted. Consequently, the economic situation of certain enterprises improves along with the income and power of managers and owners and perhaps, also, with the overall income and employment of workers.

Notwithstanding the importance of the irregular economy to the operation of the regular economy, there exist fundamental negative effects as well. The workers' social situation probably weakens. The overall condition of government deteriorates: tax evasion and withholding of contributions decrease governmental income; while pilfering and, above all, corruption tend to increase its costs. The increase in costs occurs through increased prices of utilized goods and services. The difference between government receipts and expenditures widens and can become a major problem. In recent years, irregular economic activity has clearly become an important cause of the state fiscal crisis in many countries. Last but not least, irregular competition by certain enterprises (through the utilization of Mafia-like means, in particular) may worsen the situation of regular enterprises.

As for *enterprises in a Soviet-type economy*, the main reason for participation in the irregular economy is undoubtedly the general shortage typical of these economies both at a macro and microeconomic level. However, Soviet-type economies are also characterized by an accumulation of idle resources within firms. The reason for this is the shortage, itself, plus soft budget constraint: enterprises try to obtain as many resources as possible in order to prevent bottlenecks in production. While hoarding resources, they hardly need be concerned by cost considerations. This tendency to accumulate idle resources within enterprises further exacerbates the shortage of other resources. Such hoarding forms the basis for a widespread irregular exchange of goods among enterprises. Each enterprise manages to obtain

the resources it needs but is usually unable to find, paying with its idle resources.

There are also cases of irregular productive activities within regular enterprises, that take place with the use of idle labor and other resources. Resulting products may be given to other regular enterprises in exchange for needed inputs. In this case, there is a reallocation of resources and productive activity differing from that scheduled by the economic plan. The worst effects of shortage in the productive sector are hereby partially alleviated. Idle resources can also be used for speculative purposes, however. Such is the case when workers of a state firm are sent by its manager to build his or her private house, or when production in excess of the plan target (made possibile by hoarded resources) is sold on the irregular ("black", "gray", etc.) market [13]. In this case, costs and production waste in the regular economy appear higher than they actually are while efficiency appears lower. However, such irregular activities may have harmful consequences on regular production (lower efficiency, lower quality), because enterprises concentrate efforts on the irregular activity.

Overall, two different types of irregular activity in the enterprise sector of a Soviet-type economy can be distinguished. One is for personal gain, mainly by managers, at the expense of public resources. This is made possible by the power position of the manager in a situation of general shortage. The other irregular activity is imposed directly by shortage, its goal being the functioning of an enterprise (and, hence, of the productive system) in spite of the shortage. Of the two, the latter is by far more important.

The situation of *households* is partly similar, partly different in the two systems. In both cases, the budget constraint of households is hard: they must rely upon income for consumption. As a consumer unit, the household in both systems has a strong incentive to use lower-priced, higher-quality goods and services offered by the irregular economy. The result is an increase in the household's welfare. In a Soviet-type economy, this incentive is stronger. Owing to the general shortage, the irregular economy is often the only (or main) supplier of certain goods and services. For this reason, prices may be even higher than those in the regular economy, though this is often compensated for by higher quality. In a capitalistic society, on the other hand, where a wider variety of consumer goods and services is generally available, purchase of irregular goods and services at a lower price permits the purchase of a greater quantity of goods.

Due to the lack of information and analysis, it becomes very difficult to determine which economic system offers the stronger motivation for

[13] On the various types of markets existing in the Soviet-type economies, cf. KATSENELINBOIGEN (1977).

purchase of irregular goods and services. Different causes are, nonetheless, well-defined: in a capitalistic economy, it is mainly the difference in prices between regular and irregular sectors of the economy; in a Soviet-type economy, the chief cause of this type of purchase is shortage.

As regards *households as a supplier* of irregular inputs (especially labor), the two systems present both similarities and differences. The common denominator is undoubtedly the possibility of earning a higher income. In a capitalistic economy, participation in the irregular economy is often a substitute for absence of a job in the regular economy and the irregular income compensates for this lack. Moreover, participation in the irregular economy may be a second job. In a Soviet-type economy, on the other hand, irregular activity is generally a complement to the regular activity, as are derived incomes. However, in the case of marginal workers (retired workers, housewives, students), the irregular activity may be the only economically-rewarded activity. In this case, it can be supposed that workers are willing to offer labor only in the irregular economy, where they can gain higher wages. In both systems, the irregular labor supply can actually be a substitute for the regular one, as in the case of absenteeism where workers are absent from their official jobs in order to take part in irregular work, while increasing their incomes.

In a capitalistic economy, unemployment is a strong direct incentive for the supply of labor to the irregular economy: the irregular activity becomes a substitute for lack of opportunity in the regular labor market. Here can be ascribed the phenomenon of foreigners taking part in the irregular economy, mainly as illegal aliens. The overall result to households in both systems is the fuller utilization of the available labor force and a higher level of consumption. However, in capitalistic-type economies, an irregular labor supply also increases employment; while in Soviet-type economies, the over-utilization of labor (moonlighting) is the most evident consequence. In both systems, the reallocation of labor, from the regular economy to the irregular one (absenteeism), prevails.

6. *The Structure of the Irregular Economy*

The specific features of the economic system determine the predominant forms of the irregular economy, i.e. its structure. In a *capitalistic economy*, irregular activity consists, above all, in undeclared legal production (evasion or avoidance of costs) at diminishing costs while giving more flexibility to the economy. Aside from moonlighting production of legal

goods and services in irregular ways only attains a modest scale. In a capitalistic country, in fact, there are very few goods and services the production of which is forbidden to private firms, as when a monopoly is legally granted to a particular private or state enterprise (e.g. spirits, cigarettes, mass transportation of goods and services, certain forms of communication).

The main form of corruption is bribery of public officials by private enterprises in order to increase demand for production (to gain contracts in the public sector), to decrease costs (exemption from payments and other duties and regulations), to increase prices and to be allotted public contributions. Corruption in various forms is also present in international trade. Other forms of bribery may involve personal gain (e.g. in order to get a job, mainly in the state sector); these take on a similar form in both systems. Owing mainly to the relatively smaller dimensions of the public sector and to the absence of shortage, however, this form of bribery seems to be relatively less important in capitalistic countries.

In *Soviet-type economies*, the main components of the irregular economy are: irregular production of goods and services both by state-owned and private underground enterprises and persons, and corruption (in particular, bribery of government officials to provide enterprises with supplementary inputs; that is, to obtain a reallocation of resources). Irregular economy is, therefore, a means to relieve the shortage of resources at a microeconomic level. Shortage also fosters corruption for private gain and in particular, for obtaining consumer goods and services in shortage. Another important form of bribery of public officials is carried out by underground private enterprises that, through bribery, are able to diminish risks associated with their irregular situation.

Evasion of taxes and social contributions, in contrast, is virtually nonexistent – with the exception of the private sector – not only because of a stronger central control over enterprises and the fact that almost every worker is a state worker, but also because of the soft budget constraint facing enterprises. Consequently, taxes and contributions are not real costs for the enterprises. The very opposite practice may arise: wages, salaries and bonuses may be artificially increased – both per capita and in the aggregate – and then kept in a secret fund by the enterprise (e.g. through the well-known method of the "dead souls") [14]. This fund is then used to buy much-needed resource from other enterprises.

[14] On this, cf. Simis (1982).

7. *Some Conclusions*

In the foregoing sections, a tentative approach has been taken towards describing the relationship between the economic system and its irregular economy by concentrating upon the underlying causes of irregular economic activity. It can be seen that this relationship is highly intricate, even from a limited perspective. Moreover, features of the economic system, alone, cannot account for every aspect of the irregular economy. Certain components of the irregular economy, such as illegal activities, have not been considered nor have political factors, such as increasing distrust in government. Cultural and political differences among countries belonging to the same basic economic system and differences in the level of economic development have, likewise, been excluded from discussion. Despite all this, the central focus on the causal relationship between the fundamental features of an economic system and its irregular economy allows for some tentative conclusions.

Given a common substratum of each economic system – i.e. an institutional framework and organization of economic activity similar to all countries belonging to the same economic system – certain constants can be found that point to intersystem differences. Underneath apparently similar phenomena in the two systems lie different causes of irregular economy as well as a different internal structure. As a result, the consequences and role of the irregular economy within the overall (regular and irregular) economy are also different. Obviously, the economic policy for the irregular economy would have to be different in the two systems, varying according to the various components of the irregular economy. These are issues, however, that lie outside the scope of this paper. Considered here will be only the *enterprise* sector, where the difference between the two systems is particularly relevant.

As a general conclusion, it can be stated that the fundamental determinant of the irregular economy in the enterprise sector of a *capitalistic economy* is the attempt to diminish costs of an enterprise, and, as a consequence, increase corporate profit, power and personal income of managers. Irregular economic activity can be used to diminish costs directly: through tax evasion, withholding of social contributions, use of Mafia methods, and employment of illegal aliens and moonlighters. Irregular economic activity can also be used to cut costs indirectly, shifting some production processes to small underground firms, increasing flexibility in the utilization of production inputs (in particular, of labor), and evading regulation. In this way, the position of workers is generally weakened, especially through expelling

trade unions from firms. The irregular economy may also be useful in increasing the demand and market share of enterprises. Vertical integration of a regular enterprise with one or more irregular firms can have as an aim, mainly in countries less developed from a capitalistic point of view, improved international competitiveness. From this point of view, irregular economy resembles capital export to less developed countries by enterprises of stronger countries [15]. Finally, irregular economic activity can be used to increase the demand for goods and services supplied by individual enterprises (bribery).

As for workers, there may be an increase in their disposable income as well as a rise in employment in firms making use of irregular methods. At a macroeconomic level, however, an overall rise in employment as a result of the irregular economy is highly unlikely. On the contrary, the most likely consequence is a reallocation of labor to the advantage of irregular activities and enterprises. A clearly positive effect on employment and on the aggregate production of goods and services – at least in the short run – can only come from international relations, when the irregular economy permits an increase in competitiveness, and when a capital intensive regular activity is replaced by a labor-intensive irregular activity. Left open here is the question of a general multiplicative effect of the irregular economy: i.e. whether the decrease in costs and, maybe, prices and the increase in profits and flexibility can give rise to an expanded level of activity in the overall economy.

For the firms in a *Soviet-type economy*, the fundamental motivation for irregular activity is shortage. In a situation in which costs do not totally form an active economic category, development of the enterprise, income of its employees – particularly of its managers – and their "quiet" life all depend mainly upon the fulfillment of the enterprise plan targets. To fulfil plan targets, the enterprise has to stock idle resources in order to exchange them for needed resources. This activity forms a fundamental part of the irregular economy in Soviet-type societies.

The irregular economy may be seen, therefore, as a lubricant for the official economy. The irregular economy increases the supply of goods and services, even within the official sector. This increase appears yet more substantial if one takes into account the irregular production in underground firms, where more intense and efficient labor utilization results in a higher labor intensity and productivity in the overall economy. However, the price level, too, is likely to be higher than in the regular economy, even if

[15] For this interpretation in the case of Italy, cf. CANTELLI (1980).

production costs in the irregular economy are proportionally lower due to stolen goods. (However, production costs are increased by the necessity of paying bribes). Additionally, higher prices result from shortage. For many – if not for all – goods, demand is, in fact, higher, sometimes much higher, than supply. There is, therefore, no problem in selling irregular supplies of goods and services, quite aside from the fact that the quality of irregular goods and services is generally higher than that of regular ones.

Overall, the irregular economy is simultaneously useful and harmful to the overall economy. It is useful insofar as it attenuates shortage and thereby provides for a better functioning of the economy. It is harmful insofar as it contradicts and counteracts the logic of the economic system. The existence of an irregular economy probably has a negative impact on the regular economy's efficiency, which may increase shortage: costs are directly increased (stolen goods and services) and labor productivity decreased (absenteeism). Last but not least, the development of the economic system, itself, especially its institutional structure, is hindered.

It is thus possible to understand why the irregular economy, an old phenomenon with many new forms, has known a relatively rapid growth since the sixties. In capitalistic countries, this decade has seen a rush of indirect (social) costs of economic activity. Rapid growth of infrastructure, welfare state and higher standard requirements by consumers and other social groups, increased strength of trade unions and increased pollution have caused a rise in taxes and social contributions and expanded the role of trade unions and regulation. The wider economic role of the government has promoted the use of bribery as a means of competition among enterprises. The irregular economy has, therefore, become a means to: cut indirect and, where possible, direct costs (e.g. wages); constrict the role of trade unions; obtain state orders for goods and services; increase the competitiveness of small versus large enterprises; and finally, cut regulation, thereby increasing the flexibility of the system.

In Soviet-type economies, the expansion of the irregular economy has been fostered by the abandonment of highly centralized economic management, increasing the autonomy of individual enterprises. A more complex economy and increased consumer demand have intensified the economic and social impact of shortage, in spite of a detensification in relation to overall production. This has fostered expansion of the irregular economy into the state sector as well. On the other hand, since the Sixties, growth of the private irregular sector has also been encouraged due to increased availability of goods and services (e.g. foreign tourism).

Given the foregoing analysis, it is likely that the irregular economy in

both systems will endure for a long time. Increased research effort is now needed to better understand the nature, characteristics, and consequences of the irregular economy as well as to formulate an adequate social policy. In both cases, the irregular economy presents a somewhat confusing picture. In fact, in neither situation can it be considered a unique sector. Differences among its components are such that a serious research effort cannot dispense with a separate analysis of major components.

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SISTEMA ECONOMICO E CAUSE DELL'ECONOMIA IRREGOLARE

L'articolo discute le fondamentali cause economiche dell'economia irregolare, intesa come il deliberato tentativo di evadere o evitare le conseguenze e gli obblighi che derivano dall'operare in un ambiente in cui prevalgono rapporti sociali generalizzati, di mercato o di piano. Vengono presi in considerazione i due sistemi economici fondamentali al giorno d'oggi, quello di tipo capitalistico e quello di tipo sovietico, e viene esaminato il ruolo che hanno le caratteristiche dei sistemi economici nel causare l'economia irregolare.

L'economia irregolare viene suddivisa in cinque gruppi sulla base di tre criteri, e vengono brevemente discusse le caratteristiche fondamentali e la composizione specifica dei cinque gruppi.

Le cause dell'economia irregolare sono suddivise in cause soggettive e di sistema. Le cause soggettive che spingono ad offrire fattori produttivi nell'economia irregolare derivano dal fatto che il livello di vita dei singoli dipende dal loro reddito personale. L'economia sommersa permette di accrescere tale reddito e, nel caso delle economie di tipo sovietico, permette di aggirare la scarsità di beni e servizi che domina sul mercato regolare.

Le cause di sistema derivano invece dalle caratteristiche strutturali dei due sistemi economici. Queste hanno due conseguenze: da un lato permettono o incentivano lo sviluppo di un'economia irregolare e dall'altro ne determinano la struttura. In un'economia di tipo capitalistico è la possibilità di diminuire direttamente e indirettamente i costi di produzione delle imprese (attraverso l'evasione fiscale e contributiva, l'evasione della *regulation*, la diminuzione del potere dei sindacati, l'utilizzazione di fattori di produzione meno costosi come nel caso del lavoro a domicilio) o di allargare la quota di mercato (attraverso la corruzione) a costituire il più potente fattore di stimolo al ricorso ad attività irregolari da parte delle imprese.

Nelle economie di tipo sovietico invece la motivazione fondamentale per le imprese è data dalla necessità di evitare o almeno attenuare la scarsità di fattori di produzione che caratterizza l'economia regolare. In ambedue i casi è evidente come l'economia irregolare sia una caratteristica strutturale del sistema economico, destinata quindi a rimanere a lungo.

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ALCUNI EFFETTI DELL'INTERDIPENDENZA TRA PAESI PRODUTTORI DI PETROLIO E PAESI INDUSTRIALIZZATI: UN'ANALISI MACRODINAMICA

di
MASSIMO DI MATTEO * e MARIA LAURA RUIZ **

Introduzione

Nell'ultimo decennio abbiamo assistito in rapida successione ad una serie di rilevanti aumenti prima e riduzioni poi del prezzo del petrolio; lo scopo del lavoro che presentiamo è di analizzare gli effetti di tali mutamenti mettendo in evidenza l'interdipendenza esistente tra il gruppo dei paesi industrializzati e il gruppo dei paesi produttori di petrolio. In particolare si vuole mettere in rilievo che il potere dei paesi petroliferi, come è stato evidenziato dalle recenti riduzioni del prezzo del petrolio, è limitato dalle possibilità di reazione dei paesi produttori di manufatti.

Verrà presentato un modello dinamico che descrive un sistema economico in cui il prezzo del petrolio viene determinato endogenamente. Si assume per semplicità che in tale sistema si possano distinguere due gruppi

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Inoltre gli autori hanno beneficiato della discussione con i partecipanti al I Convegno Scientifico Annuale dell'Associazione Italiana per lo Studio dei Sistemi Economici Comparati, tenutosi a Torino il 25-26 Ottobre 1984, e con i partecipanti al Seminario di Ricerca Economica della Università di Vienna, tenutosi a Vienna il 17 ottobre 1985, a cui il lavoro è stato presentato. La ricerca di cui qui vengono presentati alcuni risultati è stata finanziata con fondi 60% del M.P.I..

Sebbene tale lavoro sia frutto di una attività di ricerca comune, la stesura dei paragrafi 1, 4 è stata curata da M. Di Matteo, mentre la stesura dei paragrafi 2, 3 è stata curata da M. L. Ruiz. Introduzione e conclusione sono state redatte congiuntamente dai due autori.

di paesi: quelli che producono beni manufatti e quelli che producono petrolio.

Il modello presentato è solo un primo passo verso la costruzione di un modello più ampio in cui l'economia dei paesi produttori del petrolio sia descritta in maggiore dettaglio ed in cui vengano esaminate anche le bilance dei pagamenti dei due gruppi di paesi. Abbiamo tralasciato del tutto, nel lavoro che qui presentiamo, di considerare le bilance dei pagamenti in quanto ci sembra che negli ultimi anni i problemi ad esse relativi abbiano occupato un posto preponderante nell'attenzione sia degli economisti che dell'opinione pubblica, mentre minore spazio abbiano avuto i problemi relativi all'economia nel suo complesso, cioè all'andamento di occupazione, produzione, prezzi e salari. Speriamo che questa pur importante omissione possa essere colmata da un successivo lavoro ancora in preparazione.

Il piano del lavoro è il seguente. Nel primo paragrafo si espongono e commentano le equazioni di cui si compone il modello. Nel secondo e terzo vengono esaminate la soluzione di equilibrio e le condizioni di stabilità del modello.

Vengono poi proposte nel quarto paragrafo alcune estensioni dell'analisi riguardanti il ruolo anticiclico della manovra della spesa pubblica.

1. *Il modello*

Il modello si compone delle seguenti relazioni:

1.1. $$D_m = S_m$$

1.2. $$D_m = \dot{K} + C_m + D_m^f + G$$

1.3. $$\dot{K} = \beta\,(K^d - K)$$

1.4. $$K^d = \upsilon S_m^n$$

1.5. $$S_m^n = \gamma\,(S_m - S_m^n)$$

1.6. $$C_m = c_1\,S_m - c_2\,P_m + c_3\,P_p + c_o$$

1.7. $$G = \overline{G}$$

1.8. $$C_p = F\,(S_m,\, P_p,\, P_m)\;\; \partial F/\partial S_m > 0,\quad \partial F/\partial P_p < 0,\; \partial F/\partial P_m > 0$$

1.9. $$P_m = (W/\pi + aP_p + c)\,(1 + m)$$

1.10. $$\dot{W} = -g_o + g_1 L/\overline{N} + g_2 \dot{P}_m$$

1.11. $$L = (1/\pi) S_m$$

1.12. $$D_p = a S_m$$

1.13. $$S_p = -p_o + (1/p_1) P_p - p_2 P_m$$

1.14. $$D_p + C_p = S_p$$

dove tutti i coefficienti sono positivi e dove l'interpretazione dei simboli è la seguente (m e p si riferiscono rispettivamente al bene manufatto ed al petrolio):

G spesa pubblica per m
$\dot{K}$ investimenti netti,
C_m domanda di consumi per m,
v rapporto capitale prodotto,
S_m^n livello normale atteso della produzione di m,
S_m livello effettivo della produzione di m,
P_m prezzo del bene manufatto,
P_p prezzo del petrolio,
m mark-up sui costi totali,
π produttività media e marginale del lavoro,
W salario monetario,
a coefficiente di uso industriale del petrolio,
c costi fissi unitari,
L domanda di lavoro,
$\overline{N}$ offerta di lavoro,
C_p domanda di petrolio da parte delle famiglie,
D_p domanda di petrolio da parte delle imprese,
S_p offerta di petrolio,
$\dot{x}$ $\partial x/\partial t$.

Le variabili endogene sono le seguenti: D_m, S_m, K, C_m D_m^f, K^d, S_m^n, P_m, P_p, C_p, W, L, S, D_p, S_p.

L'equazione 1.1. rappresenta la condizione di equilibrio tra domanda e offerta aggregata di merci manufatte nei paesi industrializzati. Si assume, quindi, che non esistano ritardi nell'aggiustamento tra le due quantità: questa ipotesi, che non è affatto realistica, specie in un modello dinamico, tuttavia si giustifica con la necessità di non incrementare l'ordine del sistema e di non usare equazioni miste differenziali alle differenze finite.

La 1.2. definisce la domanda aggregata di merci manufatte come composta di consumi, investimenti, spesa pubblica esogena ed esportazioni.

La funzione degli investimenti netti è modellata (equazioni 1.3. e 1.4.) sul principio dell'aggiustamento dello stock di capitale [1]. Si ritiene tuttavia che lo stock di capitale desiderato, data l'unica tecnica esistente [2], non sia in relazione con il livello della domanda corrente, come ipotizzato da coloro i quali per primi hanno introdotto questa formulazione, ma piuttosto con il livello della domanda normale. Con questa ultima espressione intendiamo un livello di domanda (e di produzione) che si ritiene possa permanere abbastanza a lungo nel tempo da far ritenere opportuno un mutamento della quantità di capitale a disposizione. Il riferimento ad una quantità normale serve per tener conto del fatto che, poiché il mutamento del parco macchine è in larga parte una decisione irreversibile, una variazione della domanda ritenuta transitoria non genera lo stesso comportamento da parte delle imprese.

C'è, in altre parole, una asimmetria tra decisioni di produzione e decisioni di investimento: nel primo caso, infatti, la produzione viene istante per istante aggiustata alle variazioni della domanda; nel secondo caso, invece, solo le variazioni della domanda normale conducono ad un mutamento dello stock di capitale. Infatti variazioni transitorie della domanda hanno il loro effetto sul grado di utilizzo della capacità produttiva che quindi varia durante il ciclo.

Si assume inoltre, per semplicità, che non vi sia ritardo tra le decisioni di investimento e la variazione dello stock di capitale, anche se, come è stato sottolineato, questo ritardo non è trascurabile e, anzi, è rilevante per il periodo del ciclo economico [3]. Il parametro β, che indica la velocità di aggiustamento, dovrebbe essere considerato endogeno ma lo si ipotizza costante per evitare l'introduzione di non linearità nella formulazione del modello.

Il processo di formazione delle aspettative sul livello della domanda normale è di tipo adattivo. Si ritiene infatti che tale meccanismo rappresenti una utile approssimazione al complicato processo di formazione delle aspettative da parte degli agenti economici. È noto che in questo caso le aspettative non sono mai perfettamente realizzate eccetto che in un punto di equilibrio. Tuttavia questa situazione, che pure non è soddisfacente, lo sembra più dell'altra, cioè di quella in cui il valore atteso e valore effettivo di una variabile sono sempre uguali fra di loro ed uguali al valore di equilibrio

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[1] Cfr. GOODWIN (1948, pp. 108-132) ed anche MATTHEWS (1959, Cap. 3, par. 3-4).

[2] Si assume che il rapporto v incorpori anche un grado, ritenuto normale, di capacità inutilizzata. Si ipotizza inoltre che la capacità produttiva sia sempre sufficiente ad assorbire gli aumenti di domanda prima della conseguente variazione dello stock di capitale.

[3] Cfr. KALECKI (1966, pp. 3-15) ed anche GOODWIN (1946, pp. 95-104).

dedotto dal modello teorico. Come è noto ciò implica la conoscenza corretta della struttura del sistema economico e del valore dei suoi parametri: in un modello deterministico l'ipotesi di aspettative razionali sembra implicare la antica nozione di previsione perfetta [4].

Nell'equazione 1.6. si ipotizza che la domanda di beni manufatti per il consumo dipenda direttamente dal livello del reddito reale in termini del bene m, e dal prezzo del petrolio ed inversamente dal prezzo del bene manufatto [5], [6].

Nell'equazione 1.7. si ipotizza che la spesa pubblica sia esogena.

Nella 1.8. si assume che la domanda di petrolio da parte delle famiglie dipenda dal prezzo del petrolio e dei beni manufatti e dal reddito reale.

Nell'equazione 1.9. è incorporata una regola di formazione del prezzo basata sul principio del costo pieno nella formulazione elaborata da Sylos Labini [7]. Le variazioni del prezzo vengono calcolate aggiungendo alle variazioni del costo del lavoro, del petrolio e del costo fisso per unità di prodotto un margine di profitto; tale margine, viene considerato costante nell'arco di tempo preso in considerazione.

L'equazione 1.10 è derivata da una curva di Phillips in forma lineare, corretta per tener conto delle variazioni del prezzo dei beni manufatti [8].

L'equazione 1.11 indica che la domanda di lavoro non dipende dal salario reale ma da un coefficiente tecnico di impiego che è considerato costante.

La domanda di petrolio per la produzione di beni manufatti (equazione 1.12) dipende, tramite il coefficiente di utilizzazione, dalla produzione corrente dei beni stessi.

La 1.13 ipotizza che l'offerta di petrolio dipenda positivamente dal prezzo del petrolio e negativamente dal prezzo dei beni manufatti. La relazione crescente tra l'offerta e il prezzo del petrolio si può giustificare assumendo che i paesi produttori di petrolio siano disposti ad aumentare il ritmo di estrazione della propria risorsa in un dato periodo per soddisfare la doman-

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[4] Su cui vedi le illuminanti osservazioni di MORGENSTERN (1969, pp. 50-77).

[5] Si tenga presente che il vincolo di bilancio per l'intera economia è:

$$P_m S_m = P_m C_m + P_m(\dot{K} + G) + P_p(D_p + C_p).$$

[6] Dalla teoria del consumatore deriva solo che c_2 e c_3 hanno segno opposto. È anche possibile che $\partial C_m/\partial P_m > 0$ e $\partial C_m/\partial P_p < 0$ ma solo se le importazioni di petrolio sono abbastanza grandi rispetto al valore del reddito, cosa che non ci sembra di poter assumere.

[7] Cfr. SYLOS LABINI (1967, pp. 74-93).

[8] Vedi PHILLIPS (1958, pp. 283-299), e LIPSEY (1960, pp. 1-31).

da (e, quindi, ad esaurirla in più breve tempo) solo se sono compensati in quel periodo da un più alto prezzo [9].

L'equazione 1.14 garantisce l'equilibrio tra domanda per uso finale e industriale e offerta di petrolio. Si può notare che, poiché la componente C_p, sensibile al prezzo, è di gran lunga più piccola della componente D_p, indipendente dal prezzo, la domanda complessiva di petrolio è praticamente rigida; pertanto non sono le variazioni di prezzo che portano in equilibrio il mercato, ma le variazioni della quantità offerta dai paesi produttori. In effetti si potrebbe pensare che con una domanda poco elastica alle variazioni di prezzo non ci sia nessun limite alle pretese in termini di prezzo dei paesi produttori di petrolio; in realtà vi sono considerazioni di lungo periodo che fissano la posizione nel piano della relazione tra S_p e P_p oltre ai costi fissi. In particolare un livello troppo alto del prezzo favorirà l'entrata di nuove imprese e lo sfruttamento di nuovi giacimenti petroliferi e, quindi, una riduzione del potere monopolistico. Inoltre con un prezzo molto alto si accelererebbe moltissimo il sia pur lungo e costoso processo di sostituzione del petrolio con altre fonti di energia e i paesi produttori di petrolio correrebbero il rischio che questo processo fosse completato ben prima dell'esaurimento della risorsa da essi posseduta.

Le considerazioni appena fatte ci sembra che siano sufficienti per giustificare perché all'aumentare della domanda a seguito dell'aumento del livello di attività dei paesi industrializzati, i paesi produttori di petrolio aumentino il prezzo in misura limitata; per riduzioni della domanda, invece, i paesi produttori potrebbero lasciare il prezzo invariato e produrre in modo da soddisfare la domanda. Per l'insieme dei paesi produttori questo comportamento sarebbe certamente più vantaggioso in termini di ricavi, almeno nel breve periodo, ma è poco probabile che esso si verifichi in presenza di un basso livello della domanda. In altre parole l'unità di comportamento dei paesi produttori è facile da ottenersi e da mantenersi durante periodi di domanda alta; al contrario, durante i periodi di bassa domanda è probabile, ed è in realtà accaduto, che ogni paese adotti una visione particolare, anziché generale, e quindi cerchi, abbassando il prezzo, di sottrarre quote di domanda agli altri paesi produttori.

Benché il comportamento descritto non sia simmetrico di fronte a variazioni della domanda, tuttavia, per semplicità, assumiamo che p_1 abbia un valore costante.

Infine, a parità di tutto il resto, i paesi produttori fissano un prezzo più

[9] Nel testo si assume che i costi siano costanti; nella misura in cui un maggior ritmo di estrazione comporti costi crescenti, questa affermazione risulta ancora più confermata. Per una rassegna della letteratura sui costi nell'industria petrolifera cfr. RONCAGLIA, (1983, cap. III).

o meno alto a seconda del livello più o meno alto dei prezzi dei beni manufatti nell'acquisto dei quali intendono riversare gran parte dei propri redditi.

Siamo consapevoli che la formulazione adottata per la determinazione del prezzo del petrolio non è che una delle molte possibili; ci riserviamo, successivamente, di esplorare anche altre ipotesi di comportamento [10].

2. *Equilibrio di lungo periodo*

Il modello presentato nel paragrafo precedente si compone di un blocco di undici equazioni che descrivono in modo completo, ancorché semplificato, il funzionamento dell'economia dei paesi industrializzati nel loro insieme, e di un sottosistema di tre equazioni da cui si ricava il prezzo del petrolio.

Nel modello vengono trascurate alcune forme di interazione tra i due gruppi di paesi e, quindi, manca una descrizione più dettagliata dell'economia dei paesi petroliferi poiché si ritiene che eventuali modificazioni del livello del reddito e, quindi, delle importazioni di tali paesi, non producano modificazioni di entità rilevante sull'economia dei paesi industrializzati nel loro complesso.

Le equazioni 1.1-1.7, 1.9-1.4 [11], [12] possono essere ridotte ad un sistema in quattro equazioni differenziali lineari del primo ordine [13].

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[10] Per una trattazione della teoria del prezzo delle risorse esauribili, in particolar modo nel caso di concorrenza perfetta, vedi DASGUPTA-HEAL (1979).

[11] Nel seguito trascuriamo la domanda di petrolio proveniente dalle famiglie poiché consideriamo rilevante una curva di domanda completamente rigida, in quanto, come già detto a p. 802, la domanda di petrolio proveniente dalle famiglie è molto piccola rispetto alla domanda per usi industriali. Per questo motivo l'equazione 1.8 viene lasciata per il momento da parte. Tuttavia l'inclusione di C_p non modificherebbe qualitativamente i risultati dell'analisi in quanto farebbe variare solo i coefficienti della funzione del prezzo del petrolio che si può ricavare dalla 1.12-1.14.

[12] D'ora in avanti assumeremo che le esportazioni di beni manufatti D_m^f, siano un dato. Tale assunzione è motivata dal fatto che il modello descrive il comportamento dell'insieme dei paesi industrializzati che producono un'unica merce, manufatti, pertanto la domanda di esportazioni proviene dall'insieme dei paesi non industrializzati ed è una quantità molto piccola rispetto al totale del reddito, le cui variazioni possono essere trascurate.

[13] Il sistema 2.1-2.4 si può ulteriormente ridurre sostituendo la 2.4 nella 2.1 e nella 2.3 ed è quest'ultimo sistema che verrà studiato per trovare la soluzione particolare e le condizioni di stabilità. Il sistema nella forma 2.1-2.4 viene qui presentato in quanto rende più agevole l'interpretazione economica dei risultati.

$$2.1 \quad \dot{S}^n_m = [\gamma/(1 - c_1)]\,[\beta v S^n_m - \beta K - c_2 P_m + c_3 P_p + \bar{C}] - \gamma S^n_m$$

$$2.2 \quad \dot{K} = \beta\,(v S^n_m - K)$$

$$2.3 \quad \dot{P}_m = [(1 + m)\, g_2/\pi]\,\dot{P}_m + [(1 + m)\, g_1/\pi^2\, N(1 - c_1)]\cdot$$
$$[\beta v S^n_m - \beta K - c_2 P_m + c_3 P_p + \bar{C}] - (1 + m)\, g_o/\pi +$$
$$+ (1 + m)\, a\dot{P}_p$$

$$2.4 \quad P_p = [p_1\, a/(1 - c_1)]\,[\dot{K} - c_2 P_m + c_3 P_p + \bar{C}] +$$
$$+ p_1 p_2 P_m + p_1 p_o$$

dove $\bar{C} = \bar{D}^f_m + \bar{G} + C_o$

Le relazioni esistenti in equilibrio tra S^n_m, K, P_m e P_p si possono rappresentare con le seguenti equazioni [14]:

$$2.5 \quad \mathring{S}^n_m = g_o\, \pi\, N/g_1$$

$$2.6 \quad \mathring{K} = v\, \mathring{S}^n_m$$

$$2.7 \quad \mathring{P}_m = (1/c_2)\, \bar{C} - [(1 - c_1)/c_2]\, \mathring{S}^n_m + (c_3/c_2)\, \mathring{P}_p$$

$$2.8 \quad \mathring{P}_p = p_1\, a \mathring{S}^n_m + p_1 p_2 \mathring{P}_m + p_1 p_0.$$

dove $^\circ$ sta ad indicare per ciascuna variabile la soluzione particolare del sistema e, quindi, il valore dell'equilibrio stazionario. Il sistema si può ulteriormente semplificare esprimendo $\mathring{P}_p$ e $\mathring{P}_m$ in funzione solo dei parametri e di $\mathring{S}^n_m$; per il momento abbiamo preferito non procedere alla semplificazione per sottolineare l'interdipendenza tra i due prezzi di equilibrio; infatti si vede immediatamente che il sistema è decomponibile: il primo blocco, costituito dalla eq. 2.5, determina $\mathring{S}^n_m$ in funzione solo dei parametri; il secondo blocco, la 2.6, determina $\mathring{K}$ in funzione di $\mathring{S}^n_m$ e dei parametri, infine il terzo blocco (la 2.7 e 2.8) determina simultaneamente P_m e P_p in funzione delle variabili stesse, di S^n_m e dei parametri. Infatti nel modello esiste un meccanismo di reazione che da P_m va a P_p e viceversa; la soluzione di equilibrio ci mostra che tale meccanismo nel lungo periodo non ha nessuna influenza sulle quantità di equilibrio ma solo sui prezzi.

Le 2.7 e 2.8 si possono ridurre alle seguenti [15].

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[14] Per la determinazione della soluzione di equilibrio vedi GANDOLFO (1980, parte II).

[15] Dalle 2.9 e 2.10 si ricava che condizioni sufficienti di significatività per P_m e P_p sono rispettivamente la 2.11a e 2.11b.(*La nota segue a p. 805).*

$$2.9 \qquad \hat{P}_m = [-1/(c_2 - p_1 p_2 c_3)] [(1 - c_1 - c_3 p_1 a) \hat{S}^n_m - \bar{C} - c_3 p_1 p_0]$$

$$2.10 \qquad P_p = [1/(c_2 - p_1 p_2 c_3)] \{c_2 p_1 a \hat{S}^n_m + c_2 p_1 p_0 - p_1 p_2 [(1 - c_1) \hat{S}^n_m - \bar{C}]\}.$$

Dall'esame delle 2.5-2.8 si nota che il valore d'equilibrio del prodotto normale e, quindi, del prodotto effettivo, è determinato, in presenza di un valore costante della produttività del lavoro, dai parametri della curva di Phillips; quanto più grande, in valore assoluto, è la componente esogena delle variazioni del salario (g_0) rispetto alla componente che dipende dalla pressione sul mercato del lavoro (g_1), tanto più elevato sarà il livello del prodotto di lungo periodo.

In equilibrio, poiché gli investimenti sono nulli, il capitale sarà al livello desiderato, cioè in rapporto costante con $\hat{S}^n_m$.

I valori di equilibrio di P_m e P_p dipendono dai parametri delle 1.6, 1.12 e 1.13; ci soffermiamo qui solo sulle relazioni esistenti tra i valori di equilibrio dei due prezzi e il coefficiente p_2 [16]; dalle 2.9-2.10 e dalle condizioni di significatività 2.11 si può vedere che, mentre ambedue i prezzi aumentano all'aumentare di p_2, invece il rapporto $\hat{P}_m/\hat{P}_p$ aumenta solo se $(1 - c_1) \hat{S}^n_m - \bar{C}$ è positivo.

Inoltre facciamo notare che $\hat{P}_m$ e $\hat{P}_p$ dipendono in modo diretto dal valore della domanda autonoma $\bar{C}$. Si può mostrare facilmente che variazioni di quest'ultima, tramite le variazioni indotte dei prezzi, si riflettono interamente in una variazione di uguale ampiezza e di segno opposto della domanda del bene di consumo manufatto.

Sostituendo le 2.5-2.6 e 2.9-2.10 nelle equazioni del modello si possono trovare i valori di equilibrio di tutte le variabili. Ci interessa qui notare che il valore d'equilibrio del salario monetario è:

$$2.14 \qquad \hat{W} = [\hat{P}_m \pi/(1 + m)] - \pi a \hat{P}_p - \pi c,$$

$$2.11a \qquad \begin{cases} c_2 - c_3 p_1 p_2 > 0 \\ \bar{C} > -c_3 p_1 p_0 + (1 - c_1 - c_3 p_1 a) \hat{S}^n_m \end{cases}$$

$$2.11b \qquad \begin{cases} c_2 - c_3 p_1 p_2 > 0 \\ \bar{C} > -c_2 (p_0/p_2) + (1/p_2) [(1 - c_1) p_2 - c_1 a] \hat{S}^n_m \end{cases}$$

Nel seguito assumeremo che tali condizioni siano verificate.

[16] Aumentando (diminuendo) il parametro p_2 i paesi produttori di petrolio aumentano (diminuiscono) il grado di indicizzazione del prezzo del petrolio rispetto al prezzo dei beni manufatti.

che è una funzione inversa del margine e del prezzo del petrolio; la distribuzione del reddito viene fissata dal margine m una volta conosciuti i valori d'equilibrio dei prezzi e della produzione.

3. *Analisi della stabilità*

L'analisi della stabilità del modello ci permette di ricavare condizioni necessarie e sufficienti di stabilità. Poiché esse sono di difficile interpretazione economica, ci limitiamo qui ad esaminare un insieme di condizioni sufficienti che siano plausibili dal punto di vista della teoria economica. Le seguenti condizioni garantiscono che il modello presentato sia stabile:

3.1a $$0 < 1/(1 - c_1 - c_3\, p_1\, a) \leq (\gamma + \beta)/\gamma\beta\, v$$

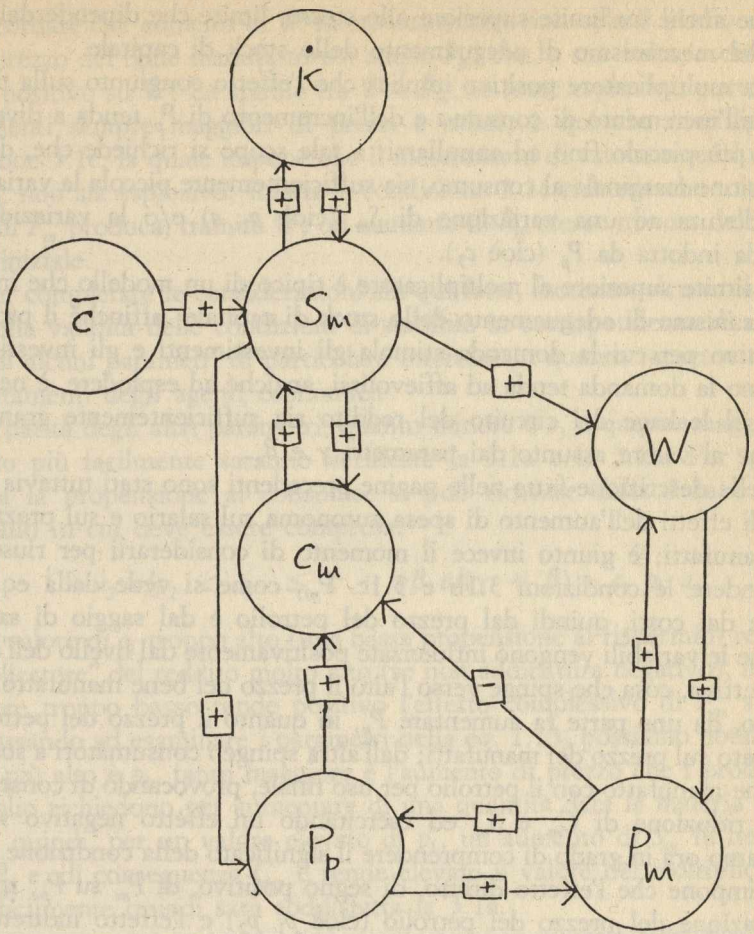
3.1b $$p_2\,(1 - c_1) - c_2\, a < 0$$

3.1c $$1 > (1 + m)\, g_2/\pi$$

Per meglio comprendere il significato delle 3.1 diamo nella Fig. 1 una rappresentazione grafica semplificata del modello mediante un diagramma a blocchi che mette in rilievo la struttura logica delle interrelazioni esistenti tra le varie parti dello schema teorico.

Seguiamo ora cosa accade nel sistema economico rappresentato dal modello quando si verifichi un aumento della domanda esogena di beni manufatti, cioè di $\bar{C}$. Poiché si è assunto che variazioni di domanda si riflettono istantaneamente in variazioni della produzione, si avrà un aumento della produzione effettiva, ottenuta con un aumento del grado di utilizzazione della capacità produttiva al di sopra di quello considerato normale. In previsione che almeno una parte dell'aumento di domanda perduri nel tempo, le imprese cercheranno di adeguare lo stock di capitale effettuando nuovi investimenti. Questo aumento degli investimenti provoca un ulteriore aumento della domanda per il bene m e del prodotto. Il processo appena descritto è rappresentato nel diagramma dal circuito che va da $\dot{K}$ a S_m e C_m e viceversa. Gli aumenti della produzione di manufatti e, quindi, della domanda di petrolio per uso industriale, provocano un aumento del prezzo del petrolio che, per l'effetto sostituzione, si ripercuote ancora in modo positivo sulla domanda e la produzione di beni manufatti (nel diagramma il circuito da S_m a C_m a P_p e viceversa).

Possiamo allora dire che la condizione 3.1a impone che tutto il circuito $K - S_m - C_m - P_p$ e ritorno sia stabile, cioè che l'intero meccanismo



"moltiplicatore" – adeguamento dello stock di capitale non sia esplosivo.

Il termine moltiplicatore è stato incluso tra virgolette perché, in realtà, si sta qui facendo riferimento ad un moltiplicatore che tiene conto anche degli effetti indotti da variazioni dei prezzi; possiamo ricavare, infatti, un moltiplicatore d'impatto del reddito dovuto a variazioni delle componenti autonome della domanda e degli investimenti, che include gli effetti indotti delle variazioni di P_p, ma esclude variazioni di P_m.

Sostituendo la 1.2, 1.6, 1.12-1.14 nella 1.1 si ottiene:

$$S_m = [1/(1 - c_1 - c_3\ p_1\ a)]\ [\dot{K} + \bar{C} - (c_2 - c_3\ p_1\ p_2)\ P_m];$$

La condizione 3.1a non solo assicura che il moltiplicatore sia positivo,

ma pone anche un limite superiore allo stesso, limite che dipende dai parametri del meccanismo di adeguamento dello stock di capitale.

Un moltiplicatore positivo implica che l'effetto congiunto sulla produzione dell'incremento di consumo e dell'incremento di P_p tenda a diventare sempre più piccolo fino ad annullarsi; a tale scopo si richiede che, data la propensione marginale al consumo, sia sufficientemente piccola la variazione di P_p dovuta ad una variazione di S_m (cioè $p_1\ a$) e/o la variazione di domanda indotta da P_p (cioè c_3).

Il limite superiore al moltiplicatore è tipico di un modello che include un meccanismo di adeguamento dello stock di capitale; affinché il processo cumulativo per cui la domanda stimola gli investimenti e gli investimenti stimolano la domanda tenda ad affievolirsi, anziché ad esplodere, è necessario che il leakage del circuito del reddito sia sufficientemente grande in relazione al valore assunto dai parametri γ e β.

Nella descrizione fatta nelle pagine precedenti sono stati tuttavia tralasciati gli effetti dell'aumento di spesa autonoma sul salario e sul prezzo dei beni manufatti; è giunto invece il momento di considerarli per riuscire a comprendere le condizioni 3.1b e 3.1c. P_m, come si vede dalla eq. 1.9, dipende dai costi, quindi dal prezzo del petrolio e dal saggio di salario; ambedue le variabili vengono influenzate positivamente dal livello dell'attività produttiva, cosa che spinge verso l'alto il prezzo del bene manufatto. Tale aumento, da una parte fa aumentare P_p, in quanto il prezzo del petrolio è indicizzato sul prezzo dei manufatti; dall'altra spinge i consumatori a sostituire il bene manufatto con il petrolio per uso finale, provocando di conseguenza una riduzione di C_m e S_m ed esercitando un effetto negativo su P_p.

Siamo ora in grado di comprendere il significato della condizione 3.1b; questa impone che l'effetto diretto, di segno positivo, di P_m su P_p, tramite indicizzazione del prezzo del petrolio (cioè $p_1\ p_2$) e l'effetto indiretto, di segno negativo tramite domanda e produzione di beni manufatti (cioè $-c_2\ p_1\ a/(1-c_1)$), abbiano un effetto netto negativo. La conseguente riduzione di P_p, farà a sua volta calare anche P_m. In termini del diagramma, se la condizione 3.1b è verificata, il circuito $P_m - C_m - S_m - P_p - P_m$ è stabile.

Tuttavia gli aumenti di S_m danno luogo anche ad aumenti del salario monetario e del prezzo del bene manufatto; siamo giunti, quindi, alla descrizione di quel settore del diagramma che riguarda prezzi e salari dell'economia dei paesi industrializzati. Poiché, se sono verificate la 3.1a e 3.1b, l'effetto netto di un aumento di P_m è una riduzione di C_m e S_m, $\dot{W}$ tenderà a diminuire e, prima o poi, ad agire negativamente su W e P_m; quindi il circuito $S_m - \dot{W} - W - P_m - C_m - S_m$ contiene in sé un meccanismo equilibratore che non richiede ulteriori condizioni per la stabilità. Bisogna

però ricordare che aumenti di $\dot{W}$ fanno aumentare non solo il livello assoluto del prezzo del bene manufatto ma anche $\dot{P}_m$, che, a sua volta, esercita un effetto positivo su $\dot{W}$. La spirale tra $\dot{W}$ e $\dot{P}_m$, se fosse esplosiva, porterebbe ad aumenti sempre maggiori di prezzi e salari; è qui che interviene la condizione 3.1c, la quale impone che il meccanismo di azione e reazione tra $\dot{W}$ e $\dot{P}_m$ non sia esplosivo; infatti la condizione 3.1c richiede che un incremento di $\dot{P}_m$ produca, tramite $\dot{W}$, un aumento di $\dot{P}_m$ stesso minore dell'incremento iniziale.

Per completare le considerazioni sin qui fatte, facciamo alcune osservazioni sulla validità delle condizioni di stabilità in corrispondenza di diversi valori di alcuni parametri di particolare interesse in quanto rappresentano i comportamenti degli agenti economici.

A parità degli altri parametri, quanto minore è c_3 e quanto maggiore è c_2, tanto più facilmente saranno verificate la 3.1a e la 3.1b. Per quanto riguarda la propensione al consumo, si può ricavare dalla 3.1a e 3.1b. l'intervallo in cui deve essere compresa:

$$1 - c_2\, a/p_2 < c_1 \leq 1 + \gamma\beta\, v/(\gamma + \beta) - c_3\, p_1\, a$$

cioè un valore di c_1 troppo alto (una bassa propensione al risparmio) rende il "moltiplicatore" del reddito molto alto (se non addirittura negativo), mentre un valore troppo basso rende positivo l'effetto complessivo di P_m su C_m.

Passando ad esaminare i parametri della eq. 1.13, possiamo notare che quanto più alto è p_1, tanto maggiore è l'aumento di prezzo che i produttori di petrolio richiedono per aumentare di una quantità data la materia prima offerta; quindi, per un valore elevato di p_1, un aumento di S_m fa lievitare molto P_p e, di conseguenza C_m e rende elevato il valore del moltiplicatore. Più difficilmente quindi sarà soddisfatta la 3.1a.

Così, quanto maggiore p_2, cioè quanto più i paesi produttori di petrolio aumentano il grado di indicizzazione del prezzo della materia prima rispetto al prezzo dei beni manufatti per evitare che la ragione di scambio peggiori, tanto più difficilmente la 3.1b sarà verificata; quindi la corsa a migliorare la ragione di scambio tende a rendere instabile il modello.

Infine veniamo ai parametri contenuti nella 3.1c, che sono i parametri relativi alla distribuzione del reddito nei paesi industrializzati, cioè il margine, m, applicato ai costi per ottenere il prezzo e il grado di indicizzazione dei salari g_2; data la produttività del lavoro, quanto più elevate sono le richieste dei percettori di salario e di profitti, tanto più difficilmente sarà verificata la 3.1c; solo un più alto livello di produttività può consentire di soddisfare maggiori richieste senza porre in pericolo la stabilità del modello.

4. *Effetti di politiche di stabilizzazione*

Esaminiamo il caso in cui la spesa pubblica anziché essere esogena, sia modificata dalle autorità economiche in funzione del raggiungimento di obiettivi di stabilizzazione interna.

Se nel breve periodo l'obiettivo da raggiungere è un livello desiderato di occupazione, le autorità possono prendere come segnale di una necessità di intervento il livello del prodotto [17]; in tal caso abbiamo la seguente equazione per G che va sostituita alla 1.7:

4.1 $$G = -f_1 \, S_m \qquad \text{dove} \qquad f_1 > 0$$

Questo comportamento delle autorità rende più piccola la derivata parziale di C_m rispetto ad S_m, quindi lo si può studiare facendo riferimento agli effetti delle variazioni di c_1.

Vediamo allora gli effetti delle possibili manovre di politica fiscale sul livello dei prezzi e sul livello della ragione di scambio dei paesi industrializzati analizzando le seguenti relazioni che si ricavano dalle 2.9 e 2.10.

4.2 $$\partial \mathring{P}_m / \partial c_1 = [1/(c_2 - c_3 \, p_1 \, p_2)] \, \mathring{S}_m^n$$

4.3 $$\partial \mathring{P}_p / \partial c_1 = [p_1 \cdot p_2/(c_2 - c_3 \, p_1 \, p_2)] \, \mathring{S}_m^n$$

4.4 $$\partial \mathring{P}_m / \partial c_1 \gtreqless \partial \mathring{P}_p / \partial c_1 \qquad \text{se} \qquad 1 \gtreqless p_1 \, p_2$$

Dalle 4.2 si vede che una politica proporzionale di stabilizzazione dà luogo a più bassi livelli di equilibrio sia di P_m che di P_p; infatti nell'equilibrio di lungo periodo una riduzione della propensione marginale al consumo non altera né $\mathring{S}_m^n$ né le componenti autonome della domanda. Pertanto $\mathring{C}_m$ deve rimanere immutato, il che implica che i prezzi devono ambedue diminuire per compensare la diminuzione del consumo indotto dal reddito [18]. Eventuali variazioni della ragione di scambio si avranno se $1/p_2 \gtrless p_2$. Per quanto riguarda le condizioni di stabilità, la politica proporzionale di stabilizzazione rende più difficile che si verifichi la 3.1b, mentre l'opposto avviene per la 3.1a.

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[17] Questo tipo di intervento può essere visto come a favore dell'occupazione se S_m diminuisce e a favore della stabilità dei prezzi se S_m aumenta. Tale politica viene definita come politica proporzionale di stabilizzazione: cfr. PHILLIPS (1954, pp. 290-323).

[18] Una diminuzione, ceteris paribus, di entrambi i prezzi fa aumentare C_m se sono verificate le condizioni di stabilità 3.1a e 3.1b.

5. *Conclusioni*

Abbiamo presentato uno schema macrodinamico, valido per l'insieme dei paesi industrializzati, la cui caratteristica è quella di aver analizzato i principali fattori da cui dipende il prezzo del petrolio che, pertanto, diviene una variabile endogena al modello, dipendente dalle interrelazioni esistenti tra paesi industrializzati e paesi produttori di petrolio.

È stato dimostrato che, sotto opportune ipotesi plausibili dal punto di vista economico, il modello è stabile. I principali risultati ai quali siamo pervenuti possono essere così riassunti:

1) Il livello di equilibrio del prodotto e, quindi, dell'occupazione dei paesi industrializzati dipende dalla posizione e dalla inclinazione della curva di Phillips nonché dal livello della produttività del lavoro.

2) I livelli di equilibrio del prezzo dei beni manufatti e del prezzo del petrolio non possono che determinarsi simultaneamente a causa dell'interdipendenza che si stabilisce tra i due gruppi di paesi.

3) Nel lungo periodo, tuttavia, un tentativo di aumentare il grado di indicizzazione del prezzo del petrolio rispetto al prezzo dei beni manufatti può peggiorare la ragione di scambio dei paesi produttori di petrolio.

4) Il perseguimento di una politica proporzionale di stabilizzazione può risultare sia in un miglioramento che in un peggioramento della ragione di scambio dei paesi industrializzati, a seconda del comportamento scelto dai paesi produttori di petrolio.

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SOME EFFECTS OF THE INTERDEPENDENCE BETWEEN OIL PRODUCING AND OIL CONSUMING COUNTRIES: A MACRODYNAMIC ANALYSIS

A simplified dynamic model is set up in order to analyze some effects of the interdependence between oil producing and oil consuming countries.

One of the features of the model is the endogeneization of the price of oil in an oligopolistic context. Under plausible assumptions the model is shown to be stable and in equilibrium, the price of oil and the price of the commodity produced in the industrialized countries are determined simultaneously. Some effects of a simplified analysis of the economic policy are also reported.

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THE ECONOMICS OF STREET CRIME

by
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Abstract

While street crime has been treated by some economists, their assumptions are at odds with the findings of law enforcers and social scientists as explained in this article which examines individual small time criminals rather than large scale organized crime.

The mathematical model used to describe a street robber (mugger)'s behavior is an ontological one which must eventually be further extended and adapted to individual cases. Using a Hamiltonian time derivative model of the convex variety, since muggers are heavy risk-takers, it is shown that these street criminals have a "win big or nothing" attitude.

Strong arm robbery is plaguing many cities in the world. This situation is especially evident in the major United States cities where forcible robbery is called mugging. Although the loot of the muggers is usually trivial, the indirect costs of mugging, such as increased policing costs and the feeling of insecurity and terror, are of a substantial magnitude. Hence, besides law enforcers and social scientists, economists, too, are beginning to explain this phenomenon from their own angle. Among them, Neher (1978), tries to establish an analogy between street criminals (muggers) and deep sea fishermen. Just as deep sea fishermen try not to overcatch fish in order to leave a sufficient quantity of catch for the future, muggers, too, try not to overmug so as to have enough victims left for future strong arm robberies. However, such an explanation is at odds with the findings of law enforcers and social scientists who specialized and deal in these matters.

Hence, it would be appropriate to describe the findings of street crime experts and then to present a model which is more in line with the realities.

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I. *Social Realities*

Based on the experience of law enforcers, social workers and psychologists, one can readily accept the fact that muggers are not like risk-averse wealth maximizing businessmen or fishermen. They are risk-prone individuals who act on impulse (Dinitz, Dynes and Clarke, 1975, pp. 44-53).

The National Commission on the Causes and Prevention of Violence states that violent robbery in United States cities is especially concentrated among youths between the ages of fifteen and twenty four (Dinitz et al., 1975, p. 45). The great majority of those committing muggery are low income black youths who live in ghetto slums. The report (Dinitz et al., 1975, p. 52) states:

> ... Believing they have no stake in the system, the ghetto young men see little gain by playing according to society's rules and little to lose by not. They believe the odds against their success by legitimate means are greater than the odds against success by crime...

When he discusses the etiology of delinquency and street crime among lower class youth, W.B. Miller (1958) cites "trouble", "toughness", "smartness", "excitement", "fate", and "autonomy" as the focal concerns that lead to street crimes and, of course, muggery.

Trouble generally represents a situation or a kind of behavior which results in unwelcome or complicating involvement with official authorities or agencies of middle class society. Toughness in lower class culture has the important components of physical prowess evidenced by strength, endurance, and athletic skill. Smartness is the capacity to outsmart, outfox, outwit, dupe, "take" or "con" others. Essentially, smartness means achieving a valued end like material goods or personal status with minimum physical effort. The smart person is represented by the card shark, the professional gambler or the "con" artist. Excitement involves elements of sought risk and danger like sexual adventuring, gambling and claims of physical prowess which may involve mugging. Fate or destiny is a set of forces over which the individuals have little control. Thus, if someone has no luck, no matter how hard he works for something, he will not achieve it. Autonomy basically means complete independence and refusal to take orders from others.

A very large proportion of muggers are teenagers who are not inclined to think about a relatively distant (2 or 3 months ahead) future. These factors make it very unlikely for them to think about a long-term optimization of the amount of muggery. Even if some of the muggers thought about it, they would still not impose constraints upon themselves since they would

think that the other muggers would overwork anyway. As it is very unlikely to have collusion among them, individual muggers or a small group of them will be unaware of what the multitude of other muggers do. It is quite common that they kill people for quite trivial amounts and rape women even when they are in danger of being caught or killed. They are much more like the risk-prone gamblers than the rational and risk-averse fishermen.

The model suggested by Neher (1978) may be partially applicable to high-level organized crime, which is likely to collude with rival gangs and divide up the area of operation. They are also likely to restrain their operations in order to make their presence tolerable among their "preys". If they go too hard at it, the preys will take chances and create some sort of resistance such as having recourse to law enforcement authorities. Even though the predators will punish some of the preys, they will have a hard time themselves trying to cope with the agents of the law. Thus, they will normally restrain their catch at a reasonable level where the preys will put up with the "tax" or "protection money". Hence, Neher's model is more in line with organized crime than it is with muggery.

For a large number of participants, muggery is not only a livelihood, but also a means of impressing or punishing the society in which they feel alienated (Brown, 1984, p. 44). The typical mugger is a risk-taker who resembles the irrational, impulsive, risk-prone gambler more than the rational risk-averting gambler who, if necessary, cheats by various means including teaming with others in order to leave a lesser role to pure luck.

II. *An Ontological Model*

It could not be claimed that the following model is applicable to every type of mugger. Nor could it be claimed that it can explain the whole behavior of even some of the muggers. However, this ontological model takes a substantial part of the typical (as described in the section above) mugger's behavior into account. It is similar to Sethi (1979)'s model for risk-prone pilferers.

Let us assume that we have a mugger who is continuously in quest of an "optimal" mugging policy. Obviously, optimal can mean different things to risk-averse, risk-indifferent or risk-prone individuals. In line with the explanations given in the section above, this mugger will be risk-prone. He will assume that there is a stochastic process leading to trouble such as his getting caught. $F(t)$ shows the probability of his getting caught by time t. $H(t)$ is the hazard rate (or, conditional probability of his getting caught at

time t (provided that he has not yet been caught) associated with a unit mugging rate. Thus, suppressing the dependence of F with respect to t for notational convenience and D being the first time derivative,

$$DF/(1 - F) = H \tag{1}$$

The mugger will normally assume that the real hazard rate increases, let us say linearly, as his mugging activity increases. Thus,

$$DF = hu(t)\ (1 - F),\ F(O) = O \tag{2}$$

where the mugger's control variable $u(t)$ is his mugging rate at time t, $H = hu(t)$ and $h > O$ is a constant.

When defining his objective function, the mugger will consider the following:

a) He estimates his remaining life to be T years, i.e., $T < \infty$. Of course, T will take a value of ∞ for the risk-prone mugger.

b) He accepts r as the discount rate, $r > O$.

c) His instantaneous utility for the amount of loot is $C(u)$ with marginal utility $dC/du = C_u > O$ and $C_{uu} > O$. Given the utility function $C(u)$ and the fact that $(1 - F)$ represent the probability that the mugger is still at large by time t, one can represent the present value of the total expected utility from the loot as,

$$\int_o^T \exp(-rt)\ (1 - F)\ C(u)\ dt \tag{3}$$

d) There is a one-time (lump sum) penalty at the moment the mugger is caught. This penalty, K, will also include psychological costs such as embarrassment. The expected present value of the total penalty would be

$$\int_o^T \exp(-rt)\ KDF\ dt \tag{4}$$

e) Naturally, there is also a continuous punishment as opposed to a lump sum one. We can assume that once the mugger is caught, he is either imprisoned or put on probation. Moreover, the mugger will estimate the rate of punishment, emotional or otherwise, to be p measured in the same units as that of utility. The expected present value of this continuous penalty is:

$$(5) \qquad \int_o^T \exp(-rt)\, p\, F\, dt$$

Using (3) – (5), the objective function becomes

$$(6) \qquad J = \int_o^T \exp(-rt)\, [C(u)\,(1 - F) - KDF - pF]\, dt$$

The objective function is to be maximized subject to (2) and the control constraint.

$$(7) \qquad u \,\varepsilon\, \Omega = [O\ \bar{u}]$$

where $\bar{u}$ is the maximum possible rate at which the mugger is capable of mugging. For the sake of simplicity, the parameters h, K, p, and $\bar{u}$ are assumed to be constant.

$$(8) \qquad J = \int_o^\infty \exp(-rt)\, [C(u)\,(1 - F) - Khu\,(1 - F) - pF]\, dt$$

It should be noted that due to the infinite horizon of the risk-prone mugger, T takes a value of ∞. The optimal control problem is to maximize J in (8) subject to (2) and (7). To apply the maximum principle to this problem one could form the current-value Hamiltonian.

$$(9) \qquad H = [C(u) - Khu]\,(1 - F) - pF + \lambda\,[hu\,(1 - F)],$$

where the current-value adjoint variable λ satisfies.

$$(10) \qquad D\lambda = (r + hu)\,\lambda + C(u) - Khu$$

The maximum of the Hamiltonian will be an extreme point because of its convexity. Thus,

$$(11) \qquad u^*(t) = \begin{cases} \bar{u}, \text{ if } C(\bar{u}) - Kh\bar{u} + \lambda(t)\, h\bar{u} > O \\ O, \text{ otherwise} \end{cases}$$

With the independence of (11), the infiniteness of the horizon implies that the optimal control is either $\bar{u}$ or O all the way.

Thus, the optimal policy of the risk-prone mugger is given by,

$$(12) \qquad C(\bar{u}) - Kh\bar{u} < O \rightarrow u^* = O,\ \lambda^* = O,$$

$$C(\bar{u}) - Kh\bar{u} > O \rightarrow u^* = \bar{u},\ \lambda^* = [C(\bar{u}) - Kh\bar{u}] / (r + h\bar{u})$$

III. *Conclusion*

After summarizing the basic findings of criminologists about street criminals, an ontological model describing the behavior of muggers was developed. The model purports to be a starting point from which further variations and refinements could be derived.

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L'ECONOMIA DEL BORSAIOLO

Negli Stati Uniti, come altrove, è diffusa l'arte del borseggiare, la quale oltre a determinare un diffuso sentimento di inquietudine e di insicurezza, è fonte di costi di polizia assai elevati. Gli economisti, hanno assunto un punto di vista differente rispetto a quello di altri studiosi (criminologi, legali, sociologi) che sono più direttamente a contatto col mondo dei borsaioli. Infatti, mentre costoro indicano i borsaioli quali soggetti altamente propensi al rischio, gli economisti tendono a trattarli come agenti avversi al rischio. In particolare un autore paragona i borsaioli ai pescatori subacquei che non eccedono nella pesca al fine di lasciare preda per future incursioni. Il lavoro esamina dapprima il comportamento e le aspettative del borsaiolo sulla base delle indagini criminologiche, facendo la distinzione tra il borseggiatore singolo e la grande organizzazione criminale, dove la logica di pianificazione e di assunzione di rischi è analoga a quella che si ha in una normale azienda.

La seconda parte del lavoro esamina un modello di comportamento del borsaiolo, assumendo elevata propensione al rischio (comportamento 'tutto o niente').

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MULTINATIONAL COMPANIES AND THE COMECON COUNTRIES

by
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Abstract

The East European countries gradually altered and rectified their original negative attitude towards multinational companies. At the same time, those countries have in recent years achieved such a level of economic development and political flexibility as to become very interesting for multinational companies. The fact to be emphasized is that the process of establishing socialist multinational enterprises in the COMECON region is going on. Those enterprises represent the crucial factor in the process of integration of the East-European countries. In the future, socialist multinational enterprises may very well become a powerful factor to reckon with.

As a matter of fact, the rise of socialist multinational enterprises in essence parallels a similar development initiated much earlier under different political and economic systems in industrially developed countries.

1. *East-West Joint-Ventures*

East European and most other socialist countries had for a long time maintained a critical and reserved attitude towards multinational companies and their activity. In those countries multinationals were regarded as business organizations whose only aim was to carry out imperialist objectives all over the world and, in the first place, the objectives of the USA. In this, the critics in those countries did not concern themselves with a deeper analysis of their activities. When the East European countries started to

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switch from an extensive to an intensive economic growth, and when they became increasingly aware of the need for modern technology, know-how, and certain modern products, they gradually altered and rectified their original position towards multinational companies. This turn was partly due to détente between the USSR and the USA, involving declining restrictions on exchange of information between the East and the West, diminishing political tensions, gradual remoulding of USA's trade policy towards socialist countries, a more flexible economic behaviour of East European socialist countries, etc.; as a result, the general situation had undergone an almost radical change during 1973-74.

The presence of multinational companies and direct foreign investments in socialist countries is still limited, although it has become more apparent in recent times. Cooperation between multinational companies and socialist countries takes place in the form of production and trade cooperation arrangements, transfer of technology and technical knowledge, thus supplementing traditional forms and volume of trade. These arrangements are a reflection of the general trends of planned-economy countries to open up to the world and to establish better cooperation with other countries, making use of certain advantages of international division of labour.

The main feature of the initial East-West cooperation agreements was a relatively small share of investments on behalf of multinational companies, especially those from the USA. The main reasons for this caution on both sides were the notorious ideological problems: the question of ownership of western partners in the socialist economy, the uncertain relations between the USSR and other socialist countries on the one hand, and the western countries on the other, and the question of US government control over trade with socialist countries.

The fact is that East European socialist countries have in recent years achieved such a level of economic development and political flexibility, that they are now in a position to interest multinational companies on various forms of cooperation. Those countries, above all, no longer maintain a rigid economic and political feature, certain differences among them are becoming apparent, and elements of independence are appearing, although their foreign policy is still in full agreement with the policy of the USSR. Those differences, such as variations in the national income, led to a new approach to cooperation with the West, the developed countries, and even multinational companies. Socialist countries are becoming more interested in the transfer of technology through multinational companies, but on a long term basis, although this is not always in line with companies' strategy. Those countries are of great interest to all partners, in view of the fact that they

have a population of approximately 370 million people, a share of 12 percent in the world trade, and an average per capita income of 4,600 dollars.

The potentialities of individual multinational companies as compared with those of specific socialist countries are shown in the table below:

TABLE 1

Multinational Companies (1983)	Turnover in billions $	Socialist Countries (1980)	GNP in billions $
Exxon (USA)	88.6	URSS	1,212
Royal Dutch Shell		Poland	140
(Netherlands and the United Kingdom)	80.5	GDR	121
General Motors (USA)	74.6	Czechoslovakia	89
Mobil Oil (USA)	54.6	Rumania	52
British Petroleum (United Kingdom)	49.2	Hungary	45
Ford (USA)	44.5	Bulgaria	37
IBM (USA)	40.2		
Texaco (USA)	40.1		
Du Pont de Nemours (USA)	35.4		

Reference: "500 the Biggest", *Fortune*, May 1984 and *World Bank Atlas*, Washington D.C., USA, 1983.

In spite of this positive change of attitude, there is still a certain degree of mistrust among individual multinational companies when investments into socialist countries are concerned. There is also a similar degree of mistrust on the other side, which certainly wields an influence on the rate of investments and cooperation in general. In spite of détente being on the agenda, the multinationals keep taking account of the fact that political systems of those countries are based on the ideology of destruction of capitalism, while, on the other hand, socialist countries regard those companies as typical representatives of capitalism, or imperialism, with the sole aim of obtaining maximum profit.

In spite of that, the initial experience has been mutually satisfactory, although neither side waived their principal outlooks on general issues. Multinational companies are objecting to the lack of flexibility of the economic and administrative structures of socialist countries, and to a certain extent, to the planning of economic development and to a selective approach to industrial development, all of which involve strict limits on companies' activities. At the same time, they are in favour of the stability of the

economic and political system of those countries, which is an important incentive for their further and continuous commitment.

The first important study on multinational companies published in a socialist country appeared in Bulgaria in 1970 [1]. The author takes a critical position towards multinational companies, although within limits acceptable by economic analysis. This study regards the expansion of multinational companies mainly as an American phenomenon. The study also supports the economic principles of socialist countries maintaining that multinationals have reduced competition on the world market, thus hampering free supply and demand.

The position of economists and theorists of the German Democratic Republic towards multinational companies is very critical: they are regarded as a sole American phenomenon and they are a challenge to the world working class. One author, for example, claims that "with the development of those companies the imperialist system has created new possibilities for social manoeuvring and has altered the conditions under which it can use its economic, military and political power in the struggle against socialism and national liberation movements!" [2].

Polish economists are taking a more moderate attitude towards multinational companies, although with an occasional critical note. They argue that there exist certain dangers from the activity of multinational companies in the developing countries, but they also think that an efficient international division of labour is vital and that in this process the multinationals can play a certain role. The negative effects of cooperation with those companies could be buffered through cooperation agreements in which socialist countries should provide for adequate control clauses, etc. It is also held that in planned economies with a strong central administration, as in East European socialist countries, multinational companies cannot be detrimental to socialism, as they are to the West. The general conclusion is that one should prepare for coexistence with multinational companies.

Rumania's position towards multinational companies is vividly expressed in the statements of senior officials. For the first time in December 1973, the public was officially informed that Rumania "like other countries" had decided to initiate the establishment of joint companies, bearing in mind the new circumstances of the world economy and the need for new forms of economic relations. Direct manufacturing cooperation with other countries would enable expansion and firmer economic relations with other countries, and at the same time, a speedier introduction of modern science and technology into national production. It was emphasized that the estab-

[1] KALČEV (1970).

[2] NEHLS (1977).

lishment of joint companies was strictly related to the national industry development programme, and their number and size would have to match national requirements, while such companies would have to be located in regions where this was absolutely necessary.

The presence of multinational companies in socialist countries with a planned economy is at this moment important in sectors which technologically depend upon imports (such as car and chemical industry). In addition, these companies are playing an important role in the exploitation of natural resources, e.g.: the U.S.S.R. project on copper exploitation in Siberia counts on investments by multinational companies of 1-2 billion dollars, with an equal participation of both sides in overall financing. For a long time the USSR has been entering into agreements on technical cooperation and assistance with multinational companies, and on the construction of complete plants, mainly in extraction industry and power production; mutual purchase and sale arrangements are also quite common. It can be said that economic relations between the USSR and West European countries have already passed the stage of sporadic trade agreements and have entered into a new phase of planned and programmed economic cooperation on stable and long term foundations. Certain socialist countries (Hungary, Poland) have entered into cooperation with large Western hotel concerns. This orientation was directly reflected in higher exports of socialist countries into industrially developed countries and in lower imports of certain items. It is noteworthy that about 600 cooperation agreements between East European socialist countries and market economy countries were registered in the first half of the seventies and almost 1000 agreements in the early eighties.

As far as it is known, Hungary and Rumania, in addition to Yugoslavia, allow for a 49% percent share of foreign capital in joint ventures. Companies are thus put in a position of a partner with a minority share, although this should not influence (and in practice it does not influence) their activity and efficiency in those countries. The same situation is in Poland, where the joint-ventures agreements were introduced in 1976. As far as Yugoslavia is concerned, the new legislation concerning joint ventures has been prepared, although not yet formally accepted, allowing more liberal and flexible negotiations with foreign companies.

In Rumania joint investments are allowed in industry and agriculture, civil engineering, tourism, transport, trade, scientific and technological research, and in services. In contrast to Rumania, joint ventures in Hungary in the seventies were restricted to trade and tertiary activities including research and development. The most recent legislation in Hungary allows for joint ventures in manufacturing, in addition to earlier restricted activities. In any case, however, only marketing organizations and companies willing to

assign licences and patents are communicating with Hungarian enterprises.

Although joint investments, according to the Constitution, are formally not allowed on the national territory of Bulgaria, in the seventies, the Government started to induce industry to increase contacts with multinational companies, and certain organizational changes in the economy took place for this purpose. However, in a Decree issued in March 1980, the Bulgarians permitted joint ventures, even with more than 50% share, and a small number were registered, although not all of these are in direct manufacturing.

After examining other socialist countries, the motives of industrial and other types of cooperation between those countries and multinational companies could be outlined as follows:

- new trade opportunities,
- different costs of factors of production,
- transfer of technology,
- stability in the development of economic relations,
- specialization and economy of scale,
- outlet to foreign markets,
- balance of payments and currency balances,
- tariff and other administrative facilities,
- transport charges,
- other advantages related to special technology,
- market, goods manufactured by companies, etc.

2. *Socialist Multinational Enterprises*

In addition, there are signs that in planned economy socialist countries the idea of the formation of socialist multinational enterprises is being considered [3]. In fact, this idea originated during the early sixties in the COMECON, although unofficially. Three possible types of enterprises are being mentioned: 1) international economic association, 2) collective enterprise, 3) international economic company, and each one of these would be constituted by a separate contract. In contrast to western multinational companies, socialist multinational enterprises would be formed by state, national enterprises, and they would engage in trade and business cooperation within the COMECON region.

This concept was carried further, and the possibility of contracts be-

[3] VOJNOVIĆ (1984).

tween socialist multinational enterprises and western multinational companies was put on the agenda. These considerations also included the formation of special zones in underdeveloped areas of specific COMECON countries which would have a special treatment, as regards legislative restrictions towards joint ventures and cooperation with foreign companies. This also shows a willingness to include in their activity the countries in which foreign investment is restricted, and consequently the presence of foreign companies is limited. Socialist multinational enterprises (or socialist common enterprises) provide important production facilities which in some industries may contribute to a considerable reduction of manufacturing costs. Furthermore, the commercial function of socialist multinational enterprises (SMEs) is very important, because SMEs as compared to individual national socialist firms command a much bigger and more diversified supply and help to establish very specific trademarks. This means that SMEs are able to develop large-scale marketing strategies, which put them in a position comparable to that of western multinational companies. The potentialities of the numerous socialist multinational enterprises enable them to handle and execute large scale and complex turnkey contracts, such as the construction of complete industrial plants, electric power supply stations, including nuclear power stations, hospitals or radio and TV broadcast stations etc. Plant sizes in European socialist states are, on the average, larger than those in western markets. This means that when producing at one hundred percent capacity and utilizing fully the economies of scale costs could be substantially reduced.

The concentration created by socialist common enterprises, creates supplementary advantages by means of establishing efficient marketing and drawing on the technological expertise of all interested units. The further advantage of SMEs is the possibility to create a vertically concentrated organization which could make it easier to balance the internal relationships in the respective national economic plans of the socialist countries.

In the process of socialist integration, the role of SMEs is very important. In the first stage predominantly bilateral socialist common enterprises were created, but in the future SMEs should acquire a multilateral form accounting for differences of the particular COMECON countries. All the bilateral solutions which do not result from objective economic premises must be considered suboptimal.

The importance and the role of socialist multinational enterprises in the process of integration is especially emphasized in the following official COMECON documents: The Comprehensive Programme for the Development of Socialist Economic Integration and The Uniform Principles of

Creation and Functioning of the International Economic Organizations, both worked out in 1976 [4].

In the future, the SME should spread even more and take a more influential position in the socialist economy. Therefore, some guidelines at least referring to the legal status, measurement of efficiency and means of control of the socialist multinational enterprise, ought to be elaborated.

As a matter of fact, the recommendations of the Comprehensive Programme referring to socialist common enterprises are not very precise and can be treated very flexibly. Their fundamental requirement is that the activity of socialist common enterprises be compatible with the national economic plan and the targets of the economic policy of participating countries.

At the same time, socialist common enterprises should be treated as the piloting units which may speed up the introduction into the economies of the COMECON countries those changes which help to harmonize or adopt a uniform economic system and contribute to the equalization of the level of development of individual member states. From the point of view of state control and financing, socialist multinational enterprises fall into two types. The first type includes those enterprises which have a "Governing Council" consisting of the ministers of the member countries responsible for the branch of economic activity concerned, and financed directly by the state budgets of the member countries (and their income also forms part of the state budgets). The other type embraces entities directly controlled by the member enterprises, run on a more or less commercial accounting basis. Accordingly, the freedom of operation of the different categories of these socialist multinational enterprises varies widely. Some are little more than agencies making recommendations to the government departments concerned or the affiliated entities, whilst others are largely independent and integrated enterprises primarily (but not exclusively) guided by profit. There is a clear trend in favour of the latter type [5].

Generally speaking, the conclusion on the significance and importance of socialist multinational enterprises is that they are regarded in the COMECON region as a progressive step – from economic cooperation to more advanced integration. In addition to their activities intra the COMECON region, they are meant to appear in capitalist markets as strong partners and deal with western multinational companies on a reasonably equal footing.

The point to emphasize is that the trend towards the internationalization of economic processes in COMECON countries has two significant

[4] ZURAWICKI (1979).

[5] WILCZYNSKI (1979).

implications. First, in spite of the different social system, the rise of multinational enterprises under developed socialism in essence parallels a similar development initiated much earlier under the capitalism system in developed economies. Second, although in the past the COMECON multinational enterprises were of very little relevance to developed markets, in the future they may very well become a powerful factor to reckon with.

MULTINATIONALLY-OWNED ENTERPRISES IN COMECON REGION

Name (with headquarters and year of foundation in brackets)	Field of Operation
Agromash (Budapest, 1965)	Horticultural machinery
Assofoto (Moscow, 1973)	Photochemical products
Friendship Cotton Spinning Mill (Zawiercie, Poland, 1973)	Spinning
Haldex (Katowice, Poland, 1959)	Coal waste extraction
Interatomenergo (Moscow, 1973)	Nuclear power equipment
Interatominstrument (Warsaw, 1972)	Atomic appliances
Interchim (Halle, GDR, 1969)	Light chemicals
Interchimvolokno (Bucharest, 1974)	Chemical fibres
Interelektro (Moscow, 1973)	Electrical equipment
Intermetal (Budapest, 1964)	Iron and steel
International Bank for Economic Cooperation (Moscow, 1964)	Clearing and short-term credits
International Investment Bank (Moscow, 1970)	Long-term financing
Interpodshypnik (Warsaw, 1964)	Bearings
Interport (Szczecin, 1974)	Major seaports
Intersputnik (Moscow, 1972)	Satellite telecommunications
Intertextilmash (Moscow, 1973)	Textile machinery
Intransmash (Sofia, 1965)	Intra-factory transport
Kingisep Potash Mining (Kingisep, USSR, 1963)	Potash exploitation
Kiyembayev Asbestos Concentration Plant (Kiyembayev, USSR, 1973)	Asbestos extraction
Komi Timber Cutting (Komi, USSR, 1969)	Timber exploitation
"Peace" Power Grid (Prague, 1962)	Central electricity transmission
Rail Freight Car Pool (Prague, 1962)	Rail freight transport
Uniafrika (Szczecin, 1961)	Baltic-West Africa shipping
Ust-Ilim Pulp Plant (Ust-Ilim, USSR, 1973)	Pulp and cellulose

Source: WILCZYNSKI: 1979.

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IMPRESE MULTINAZIONALI E PAESI DEL COMECON

I paesi dell'Europa Orientale e degli altri paesi socialisti hanno a lungo conservato un atteggiamento di riserva critica nei confronti delle imprese multinazionali e della loro attività. L'atteggiamento si è modificato ed è divenuto più flessibile recentemente. Al tempo stesso quei paesi hanno ormai raggiunto un tale grado di sviluppo economico e di flessibilità politica da trovarsi nella condizione di suscitare l'interesse delle imprese multinazionali a scopo di cooperazione sotto diverse forme. La presenza delle imprese multinazionali nei paesi socialisti a economia pianificata ha in questo momento maggior peso in quei settori che dipendono tecnologicamente dalle importazioni, come l'industria delle automobili, l'industria chimica e altre. Tali imprese stanno anche svolgendo un ruolo significativo nello sfruttamento delle risorse naturali. Inoltre le relazioni economiche tra i paesi socialisti hanno superato, per la maggior parte, il carattere di rapporti sporadici basati su accordi conclusi caso per caso e sono entrate in una fase nuova di cooperazione stabile a lungo termine.

Vi sono inoltre segnali di avanzamento del processo di formazione delle imprese multinazionali socialiste nella regione del Comecon. Attualmente tale processo di formazione non dipende più soltanto dall'azione degli agenti di governo di quei paesi, ma avviene soprattutto attraverso accordi contrattuali con imprese multinazionali occidentali, con risultati assai significativi ai fini della integrazione tra gli stessi paesi dell'Europa orientale.

In certi paesi inoltre la politica economica favorisce i processi indicati consentendo la formazione di accordi con imprese del mondo occidentale per zone specifiche a carattere meno sviluppato all'interno del paese stesso.

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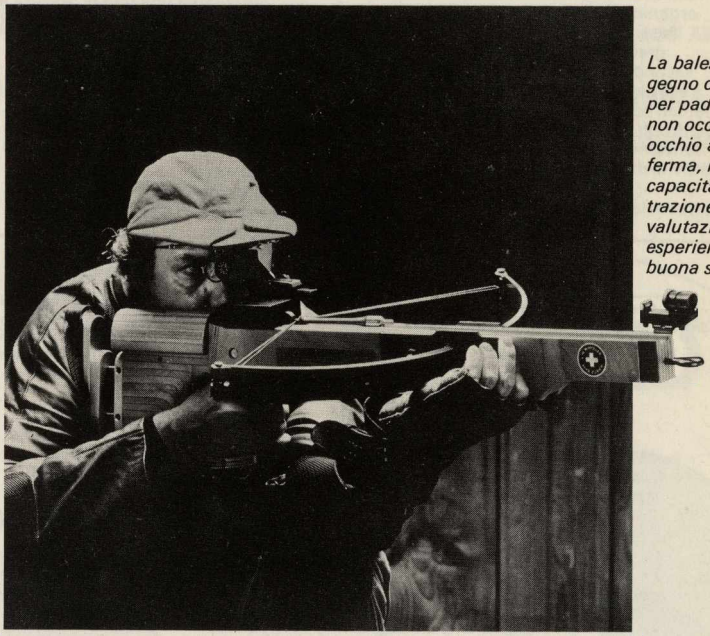

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AgipPetroli

Raffinazione e distribuzione di prodotti petroliferi. Fornitura di servizi per il risparmio dell'energia, per la razionalizzazione dei consumi e l'uso di fonti energetiche diverse dal petrolio.

Snam

Approvvigionamento, trasporto, distribuzione e vendita di gas naturale. Trasporto di idrocarburi liquidi.

AgipCarbone

Ciclo integrato del carbone: ricerca e coltivazione mineraria, logistica e trasporto, trasformazione, commercializzazione su scala internazionale, ricerca scientifica e tecnologica per sviluppare e diversificare l'utilizzo del carbone e dei derivati.

Samim

Ricerca, estrazione, trattamento e commercializzazione di minerali e derivati.

Enichimica

Petrolchimica di base, materie plastiche, gomma sintetica, prodotti chimici per l'agricoltura, fibre sintetiche, materie prime per detergenti, tecnopolimeri, chimica fine, prodotti farmaceutici.

Snamprogetti

Studio, progettazione e realizzazione di impianti chimici e petrolchimici, di raffinazione, di trattamento gas, condotte in terra e in mare, tecnologia offshore, impianti industriali, impianti per l'ecologia e grandi infrastrutture.

Saipem

Perforazioni e posa di condotte in terra e in mare; montaggio di impianti industriali.

NuovoPignone

Produzione e fornitura di macchine, di apparecchiature, di strumenti di misura, regolazione e controllo per l'industria petrolifera, petrolchimica e nucleare, di telai per l'industria tessile.

Savio

Produzione e fornitura di macchine per l'industria tessile.

Lanerossi

Industria tessile e dell'abbigliamento.

Sofid

Finanziamento di attività industriali e commerciali del gruppo ENI.

Hydrocarbons Int. Ho.

Compravendita e gestione di partecipazioni e titoli; finanziamento delle attività del gruppo ENI all'estero.

Banco di Sicilia

in Italia e all'estero

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MILANO	RAVENNA	CATANIA
VARESE	FIRENZE	ENNA
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NCR 5068. IL PERSONAL BANCARIO CHE METTE I CURIOSI FUORI GIOCO.

Ricordate il film "War Games"? Se è ipotizzabile che qualcuno con un personal possa manipolare i missili, figuriamoci i conti in banca! Oggi la NCR, grazie alla sua esperienza nel settore bancario, offre la giusta soluzione al problema della sicurezza negli istituti di credito: il PC 5068, stazione intelligente bancaria.

Basato sull'architettura del PC 6 NCR, il 5068 dispone in più di un sistema di sicurezze tali da rendere leggibili gli archivi solo sulle macchine che li hanno generati.

Un operatore non autorizzato non può accedere al software e un software non autorizzato non può essere fatto funzionare. A queste sofisticate tecniche di protezione interne dei dati, il PC 5068 associa il dispositivo di cifratura standard NBS/DES che rende inaccessibili anche le trasmissioni da e verso Host, attuabili nei più diffusi protocolli. In questo modo, si chiude il cerchio della sicurezza.

Per concludere, con il nuovo PC bancario 5068 della NCR, tutti gli istituti di credito possono – ad un costo estremamente competitivo – mantenere i massimi livelli di sicurezza e mettere i propri clienti al riparo da possibili "curiosi" e "ladri di computer".

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idea 2

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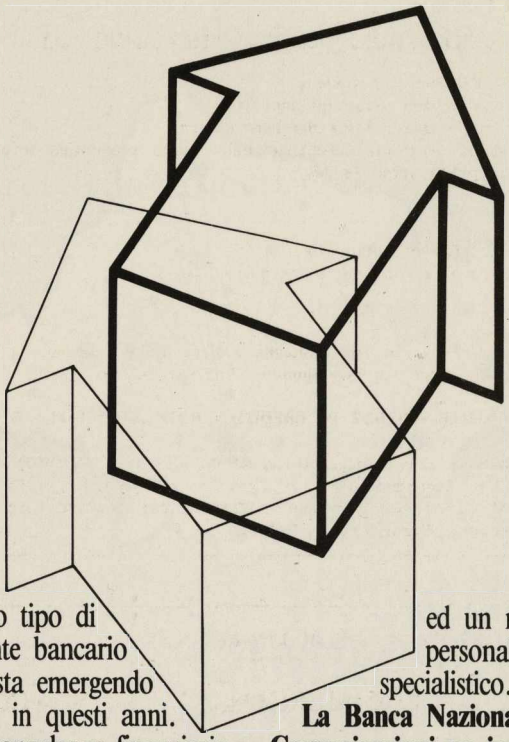

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